

AN INTRODUCTION TO ARCHAEOLOGY

By the same author:

THE MOTHER GODDESS

**THE PROBLEM OF THE KUSHANAS
AND THE ORIGIN OF VIKRAMA SAMVAT**

**THE EARLIEST EMPERORS OF INDIA:
THE NANDAS AND THE MAURYAS**

A N
INTRODUCTION
TO
ARCHAEOLOGY

by

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ASIA PUBLISHING HOUSE

BOMBAY

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CALCUTTA

September, 1955

PRINTED BY G. G. PATHARE AT THE POPULAR PRESS (BOM) LTD BOMBAY 7. AND
PUBLISHED BY P S JAYASINGHE ASIA PUBLISHING HOUSE BOMBAY

To

SHRI JAWAHARLAL NEHRU

FOREWORD

THE PURPOSE of this work is to give a very brief account of the achievements of prehistoric and proto-historic archaeology, so as to offer a fresh student of this subject, or an intelligent layman interested in it, an idea of "what it is like". It is written, so to speak, to initiate a young archaeologist into the first avenues of his future studies, or to create in the mind of a lay-reader some interest in the subject. If either the one or the other of these two general aims be fulfilled even in a few cases, the author of this work will have no cause to regret having written this work.

Obviously, the field that we intend to cover appertains to human activities of a social nature, since the earliest times up to the beginning of the truly historical period of human civilization, that may conveniently be supposed to begin with the production of literature on a mass scale. Naturally, it is not our intention here to propound any theory, and to prop it up with a mass of elaborate details, over and above the horizon of the outline of prehistoric archaeology, though, be it admitted, we have not shunned propounding new theories or propping them up for the sake of bringing out that outline. Indeed, the above-mentioned aims compelled us to eschew over-burdening details about numerous problems that naturally cropped up in the course of the treatment of this subject. If this had its advantages in simplifying for the reader a number of complicated issues, there was in this also the danger that many of the views and theories expressed in these pages could not be set forth at any length; i.e. the author has not been able to do justice to a number of problems that he was compelled to touch upon in writing this *Introduction to Archaeology*. And by naming the work thus, we have allowed ourselves that margin which has enabled us to include in it the treatment of the "methodology" of modern archaeological studies, a summary account of known epigraphical material and so forth.

It will be noticed that, in many fields and on numerous occasions, the author of this work has drawn freely upon some of his sources or depended upon some of his authorities quite considerably. The author wishes to shelter himself behind the dictum that "plagiarism is the lot of all historians". In fact, his aim of creating an interest in this "dry science" could not be attained on a number of occasions without verbal dependence on his predecessors. He does not ever wish to shirk good ideas and good words, only

because they belong to others, nor does he ever wish to conceal his obligations to them (as some others are at least occasionally wont to do). It is not possible to get away from the truth that hardly anybody can become a master of the science of archaeology in its various branches, even in a single country — much less so in all countries. And this, in effect, means that one has got to depend on the statements and accounts of others, in their own respective spheres. Is it not, then, best to acknowledge one's indebtedness to them by quoting them within inverted commas rather than without them — as (and this the present writer knows to his own and others' cost) some writers at least occasionally do? The present author must also confess that in order to give a simplified account of the subject, he often found it convenient to utilize such popular works as those of Prof. V. Gordon Childe, Prof. J. H. Breasted, Rao Bahadur K. N. Dikshit, Sir Leonard Woolley, Dr. Ernest J. H. Mackay, Mr. Edward Clodd and other writers: For the sake of brevity, quotations from their works were often found to be indispensable.

The scope of this work is limited, as indicated above, to the methods of archaeology and the outline of prehistoric archaeology. An archaeologist is first of all a historian and then anything else. The business of a historian is to trace the running thread of what are apparently purposeless social activities of the bygone generations. It is these aspects of the subject of archaeology that are prominently brought out by the following quotations from two eminent archaeologists, the late Rao Bahadur K. N. Dikshit and Prof. V. Gordon Childe. The former points out that archaeology is "a handmaid to history, but this handmaid is thoroughly faithful and can be relied upon to bear the torch correctly to the dim recesses of long-forgotten passages of history."¹ The latter points out that prehistory "can recognize peoples or communities, and marshall them on the stage to take the place of the persons who form the historians' troupe"²—i.e. of the kings, emperors, statesmen, generals, admirals etc., who are the "makers of history", according to a widely prevalent present-day conception of history.

S. K. DIKSHIT

1. *Presidential Address of the Sixth Session of the Indian History Congress at Aligarh* (December 1943).

2. *The Antiquaries Journal* (April, 1941), XXI, p. 105.

A C K N O W L E D G E M E N T S

The author of this work is indebted, *inter alia*, to the following institutions and persons, but for whose help this work could never have been produced in the present form, and would have, therefore, left much more to be desired.

Most of all, I am indebted to Mr. P. S. Jayasinghe of Asia Publishing House who kindly undertook the publication of this work. Indeed, without his active encouragement it would not have been possible for the author in these hard days to publish this work for at least a few years more.

I am also greatly indebted to the Department of Archaeology in India and to the Director-General of that department for the kind permission they have given for reproducing all the illustrations found in Plates IV, V, VI, VII and VIII. I am no less indebted to the Trustees of the British Museum for the kind permission granted by them for reproducing the illustrations given in Plates I, II and III.

For reproducing the above-mentioned illustrations, I am indebted to my friend, Mr. B. W. Khadilkar, to whose keen and hearty interest the success of the plates is largely due. I am also indebted to the Manager of the Popular Press (Bombay) Ltd., for the keen and efficient interest taken by them in printing the work

In bringing out this work, I owe a good many suggestions to a number of friends, some of whom have refused me any permission to thank them publicly, and who must, therefore, remain anonymous. None the less, I consider it my duty to state that I have profited considerably by the suggestions of Mr. B. A. Olkar and Mr. Raj Gopal who kindly read through the whole of the manuscript of the present work and to whom I owe a number of corrections.

I am very much thankful to Dr. S. P. Agharkar, Retired Ghose Professor of Botany, Calcutta University, for drawing my attention to certain articles, utilized by me in Appendix I.

The first two chapters of this work have been already published

ACKNOWLEDGEMENTS

ed in the Mn. D. V. Potdar Commemoration Volume, and Chapter XIII in the *Annals of the Bhandarkar Oriental Research Institute*, Vol. XXXI—to the editors of both of which the present writer is indebted for being allowed to reprint them in a revised form. The contents of Chapter VI (on the definition of the “Ages” in archaeology) have already been communicated to the scholarly world at the Poona Session of the Indian Science Congress, held in 1949, although they are given here in a much revised and extended form.

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PART I

ARCHAEOLOGY GENERAL

CHAPTER I

DEFINITION, SCOPE AND METHOD OF ARCHAEOLOGY

THE word "archaeology" is to be derived from *árchaios* meaning "ancient" and *lógos* meaning "knowledge." It has been, therefore, variously defined as "the study of antiquity," "the science of ancient things,"¹ etc. But this etymological meaning of that word is not exactly what that word really signifies. It is best defined as the "science of ancient remains"—as has been done in *The Modern Encyclopaedia* of Sir J. A. Hamilton; for, indeed, we do not include in "archaeology" such "ancient things" as the Vedic lore, the Bible, and similar other early religious texts, that we may study merely from the literary point of view. Nor do we include in that term even the works of Herodotus, Thucydides, Hsüan Ch'uang, Kalhana etc., which we cannot truly call "remains," though they be ancient and pertain to history. Such religious or historical documents would come within the purview of archaeology, only when they be unearthed in some form or other as material relics of the activities of the ancient man. None the less, as will be made clear later, the study of these documents is quite indispensable for an archaeologist, whose function does not stop merely with the collection of the ancient remains, but must include an intelligent appreciation and interpretation of these remains. Thus, by the word "remains" in the definition, we clearly refer to the material relics that the ancient man has left behind, and not to such intangible, notional relics, as are embodied in books printed in recent times, or as are found in modern folklore. By the term "ancient"—which is, of course, a vague term—we generally refer to a period, when we cannot have that abundance of written historical material, which the invention of the printing press enabled us to have only a few centuries ago. Perhaps, this is not very satisfactory; but, then, the very use of the word "archaeology" is, to that extent, unsatisfactory. In this small work, we shall confine ourselves mainly to what is generally known as "prehistoric and protohistoric archaeology," so that we may escape the blame of using the word "archaeology" in its most elastic (and, therefore, unsatisfactory) sense.

1. The ancient Greeks themselves used the word *árchaiología* to cover the discussion of antiquities.

By the word "science" we wish primarily to emphasize that it is above all an intellectual discipline, and that it must, therefore, be always distinguished from "antiquarianism.". The latter can be taken up as a hobby, the former cannot. The latter includes in it a number of things such as a love for things antique, a zest for collecting them—without the slightest desire of appraising them scientifically—and so forth.² Antiquarianism is anything but a science; archaeology is quite the antithesis of it, in this sense.

But archaeology, like history, cannot be looked upon merely as a science. The skill that an archaeologist is required to show practically at every turn in the pursuit of his craft, in excavations, in the preservation of antiquities or monuments, in the museum-work, or even of the ancient past, entitles his craft to be termed as an "art". It is a new art, an art of the scientific age—of the last hundred years: it is a scientific art.

That archaeology is both a science and an art is emphasized by a number of high authorities including a writer in the Encyclopaedia Britannica: "It is, or should be, a scientifically ordered branch of knowledge, professed by men of truly scientific training, on a certain subject, namely the remains of ancient human activity. It is, or should be, also the art that deals scientifically with these remains, that excavates them from the earth where they have been buried, conserves them and restores them (but only so far as to make them intelligible) and publishes them for the interest of ourselves and posterity."³

This curious nature of the subject makes it liable to be exposed to two opposite dangers. Archaeologists, who take it merely for a science, underrate the part that analysis and synthesis play in the exposition of this subject, and reduce it (unconsciously though) to a dry-as-dust nature, like that of a statement of accounts. This has

2. It will be easily seen that antiquarianism is one of the steps in the development of archaeology. Assurbanipal of Assyria, one of the earliest antiquarians known to history, not only collected a vast amount of tablets and documents of earlier days, for his wonderful library at Nineveh, but also prided himself on his ability in deciphering the ancient script. The great Kashmiri historian, Kalhana, claims to have solved many a moot point in the history of Kashmir to the satisfaction of his own conscience, with the aid of the records of the tame rulers, copper plate inscriptions etc. Vide Raja tarangini I 15 -

“ दृष्टैश्च पूर्वभूमर्त्प्रतिष्ठावस्तुशासनैः ।
प्रशस्ति पटैः शास्त्रैश्च शान्तोऽशेषब्रमक्षमः ॥ ”

One of these was an antiquarian despite all his abilities in deciphering the ancient records, whereas the other was an archaeologist despite his numerous mistakes and failings.

3. E.B. (14), II, p 232 f. (On "Archaeology").

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naturally reduced archaeology in the eyes of people merely to "a business of the specialists," which is supposed to be no concern of the commoners. The human side of this science is totally ignored by such "specialists." On the other hand, there is a much greater danger from the other side,—a danger, to which every scientist must be alive. "It is a science"—it is also pointed out by the same authority—"that has some difficulty in keeping true to its ideal, because the human interest of the subject attracts to its study many persons of untrained minds."⁴ In its idealized state, archaeology must be deemed as a humanized science; but it must never be so much humanized as to negate its scientific aspect.

Both these aspects of archaeology are probably brought out nowhere so successfully as in the following popular 'definition' (or, may we say 'description'?) of this science: "Archaeology: the systematic study of antiquities and the weaving of the earliest history of nations and peoples from the remains of buildings, burial places, implements, utensils, and ornaments, belonging to periods of which we have few or no written records."⁵

Equipment of an Archaeologist

The scope, duties or functions of an archaeologist, therefore, cannot be restricted to any one aspect of archaeology: and this is true in more than one sense. The activities of the ancient man, as reflected in the ancient relics, with which this science deals, were manifold. A science, that takes into cognizance the manifold aspects of life, cannot be adequately dealt with by any one who restricts his own field to only one aspect of it. It is, therefore, well said that the methods of archaeology are exemplified both in the study and in the field.⁶ A modern archaeologist can be neither "the purely stay-at-home arm-chair 'savant' of the old school," nor a mere "field-worker," who refuses to avail himself of the ancient literary and inscriptional evidence, and is, therefore, frequently liable to misinterpret his finds, or unable to interpret them at all. Undoubtedly, "the most efficient all-round type is the man, who is at once scholar, historian and the worker in the field."⁷

Whether an archaeologist has to determine the exact date of his finds, or to decide the relative chronology of any object, the background for his work is often to be found in the inscriptional records

4. *Ibid.*

5. *Jack's Reference Book* (London & Edinburgh). p. 45

6. E. B. (14), II, p. 233.

7. *Ibid.*

of the country with which he may be dealing, as, for instance, in the hieroglyphic records of Egypt, the cuneiform tablets of Mesopotamia, the inscriptions in the Brahmi and Kharoshthi alphabets in India, and so forth. Epigraphy, the study of these records, does sometimes become a very specialized task, demanding the energy of one's life-time—as in Egypt and Mesopotamia. Even elsewhere it constitutes the most important branch of the “arm-chair” savant's study. This branch alone is sufficient to show the importance of the work of the arm-chair savant.

In countries like Egypt, Mesopotamia and China, where the demands made of an epigraphist are quite exacting and exhausting, it is found best for workers, who have specialized in different branches such as excavation and epigraphy, to come together and co-operate with each other. But in India, Greece, and some other countries, where specialization in epigraphy can be adequately achieved with much less labour than in the above-cited cases, it is profitable for such an epigraphist to acquire in addition adequate training in the field work and in other branches of archaeology. It is, obviously, more possible for an archaeologist, who is already quite familiar with all sorts of documentary evidence of the ancient past, to find out new and correct meaning of the finds or antiquities he exhumes, than it is for one who is not so familiar. In reality, a single archaeologist of the former type—let us call him a “literate” archaeologist—is likely to prove a more capable hand than a couple of archaeologists, co-operating with each other, one of whom may be only an epigraphist, and the other “an illiterate archaeologist.” (i.e., one, who is not an epigraphist). An all-round archaeologist, who has to do justice to both the literary and non-literary remains of the ancient past, must, in addition, possess another qualification: In order to do justice to epigraphy, he must be a good linguist; in order to do justice to the other remains that he uncovers, he must also be a good historian.

Since archaeology concerns itself with the study of all the aspects of the ancient life of man, obviously the more he is able to do justice to it, the better archaeologist he is. His study of the ancient literature would help him in one way, just as his familiarity with different museums would help him in another, and that with the ancient sites and geographical details in a third. But this is not all. It is easy to understand that if he has a sound training in such spheres as photography, engineering, draftsmanship, chemistry, and even the potter's craft, that would help him immensely in his own job. And since he is liable to exhume jewellery, semi-precious stones, beads etc., he will profitably learn at least something about

DEFINITION, SCOPE AND METHOD OF ARCHAEOLOGY 5

them so as to be able to record and describe accurately such objects on the spot. He must also have some good grounding in geology, which is especially needed in the study of pre-historic archaeology.

He must also know the nature of the objects he unearths, which will enable him to handle them properly not only during the excavation itself, but also afterwards. Otherwise, they are often liable to be broken to pieces, or damaged, and the scientific value of such remains lost or impaired to that extent. Therefore, he must have a sound training in what is called "archaeological chemistry,"—an aspect of archaeology, which is, unhappily, very much neglected, in the training of an archaeologist, by the orthodox school in India. In India, in China and in some other "conservative" countries, an archaeologist must also familiarize himself with the common household utensils, furniture, ornaments etc., prevalent in the district, wherein he might be excavating—this, for the simple reason that in many matters, the present is not altogether divorced from the past in these countries, as is the case in a number of more civilized countries. In India and China, for instance, the villagers often cook even today in the utensils of the same types that their ancestors used many centuries ago. Nay, even the food of many of our castes and tribes may be in many cases related to what our ancestors ate, just as in China it certainly is, to that of their ancestors. Again, as we shall see later on, the cotton fibre, unearthed by the excavator's spade at Mohenjo-daro, is related to the one that grows in Sind even today.

An archaeologist must, therefore, familiarize himself with common objects of the present day, especially of the country-side. His familiarity with the ornaments of the country women of today will, for instance, profit him greatly. But since the archaeologist is more concerned with the ancient history of those articles than with those aspects which delight the man (or the woman) of the world, he should profitably make a comparative study of all the important finds, dug out previously in various localities all around that district, even more than that of the types of modern ornaments etc.; and he should also make an intensive study of the finds in all the important museums—of course, as far as his finances permit! In truth, his first and foremost qualification would be a desire for learning all these, an inquisitiveness, a penetrating insight, an "eye" for interesting light that can be brought to bear on any historical problem. And his ideal should be to learn, and to learn more, and to learn still more—about practically every department of life that concerns the ancient man, his activities and the preservation of his extant

works. There are some other aspects of the subject, concerning the equipment of an archaeologist, whereby he is required to take the aid of modern technology in a number of fields. But since the present work is by no means meant for an advanced student of archaeology, but only for a beginner, I refrain from making more than a passing allusion to those aspects.

Archaeology as an Art

Thus, archaeology is a science that is aided by a number of other sciences. But the "art" of an archaeologist comes in, in rendering a human interest to the "dead" remnants of the ancient man and his works, as indicated above. It is the sacred duty of an archaeologist to conjure up the ancient past from those remains, by means of a scientific study and a systematic imagination. This aspect, of 'archaeology as an art', is, however, unfortunately most ignored by those who absorb themselves in the technical aspects of this subject. It can never be too much emphasized that archaeology, being an intensely human subject, needs to be treated with a thoroughgoing human outlook. Otherwise, the lop-sided interest of the specialist is prone to create merely a morass of details, in which the main picture of the society of the period, to which the relics belong, is liable to be lost.

That archaeology is an art becomes clear to anybody who has had an occasion to wield a knife or a pen-knife in an excavation, or to take ink-estampages off an inscribed stone after duly cleaning it, or to exhibit the antiquities in some museum in an orderly and attractive manner. An uninitiated reader is liable to imagine that there is also some knowledge of the mysterious or the occult involved in—or at least some "art", associated with—the finding out of a proper site for excavation. But this is not so. Often the historical relics are exposed to the eye by the hand of Time—by weathering, etc. Such sites yield, in India, as 'surface-finds', innumerable pot-sherds, brick-bats, fragments of icons, and occasionally even rusted or "patinated" coins of silver, copper and other metals. Such indications are sufficient for any intelligent person to visualise the existence of an ancient habitation. Quite frequently, such sites are marked out by mounds of various sizes, or undulating lay of the land, suggesting the burial of the debris of a building etc., underneath. The *approximate* period of such a mound can be easily determined by an archaeologist, who is already familiar with all sorts of antiquities of different ages and of different periods, by means of analogies provided to him by the "surface-

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finds" mentioned above.

Quite a number of ancient sites, known to archaeologists all over the world, and especially in India, have been determined first of all by some chance-diggings, that some playful village-boys carried out in the games, or that the railway officials conducted in spreading out the network of railways. It is to the playful village boys that we owe many of our important hoards of ancient coins in India, and these hoards in turn have enabled the archaeologists to locate some ancient sites. Like many other sciences, but probably in a greater measure than any other, archaeology was, in its infancy, laid under obligations by a number of individuals, who had not the slightest inclination to do so.

But it is not always to chance that we owe our knowledge of an ancient site for excavation. Indeed, such sites are comparatively few in number, if we take into account others that we owe either to the zeal of a traveller or an explorer, or to the knowledge derived from literary and inscriptive sources. In India, for instance, the accounts of such travellers as Fa Hsien, Hsüan Ch'uang etc., were, in a large measure, responsible for the initial archaeological explorations, carried out by Gen. Alexander Cunningham and others, whose efforts were rewarded by the coming to light of a number of ancient sites, throughout the length and breadth of India.

In some countries, in the process of modernization, building activities and canal digging have played an important role in bringing to light a number of prehistoric and early historic sites. In these matters, the example set up by some Soviet countries, wherein an immediate attention is paid and adequate funds made available to rescue precious relics of ancient times, deserves emulation. We learn that in the U.S.S.R., "compulsory contribution for the archaeological exploration of new factory sites" is levied.⁸ Again, it is stated that during "construction of the Baltic-White Sea Canal by the Bolsheviks, the excavations were made by official archaeologists, in accordance with the accepted principle of watching the sites of new constructions for early remains."⁹

8 Clarke, p. 22.

9. Ibid., p. 20. But, perhaps, the need of paying a special attention to this aspect of the problem is not so much felt in some countries, since the canal-cutting activity is not itself so much in evidence there.

CHAPTER II

EXCAVATION

EXCAVATION is, perhaps, one of the most important branches of archaeology, of which the general public is allowed to know the least, without the scientists in that field having any intention to do so! The business of an excavator starts with the preliminary enquiries and investigations of a site, and ends with the publication of the materials unearthed; and each of the processes involved in this business needs scientific evaluation to dispel the popular conception that equates excavation with mere digging. There is another popular conception, fostered by archaeologists, perhaps, not altogether unintentionally, that in order to be a successful excavator, one must have the "eye" of an archaeologist. Prof. Schliemann, to whom we owe the treasures of Mycenae, Tiryns, and Troy, is often popularly supposed to have been gifted with such an "eye". True, inspiration and intuition do play occasionally a notable part in excavations. But we must also remember that the inspiration and intuition are often an unconscious expression of the intellectual attainments or studious efforts of an archaeologist. We have already suggested that in determining the locality of a number of ancient sites in India and elsewhere, the archaeologists have often called to their aid extensive ancient and medieval literature, as well as epigraphical and numismatic records. Such knowledge is, indeed, a part and parcel of the "eye" of an archaeologist.

The "eye" of an archaeologist is, however, required not so much for the finding out of an ancient site, as for the selection of the actual spot of excavation. You must try to utilize your finds to the best of your ability in the most profitable way; and this you can do by constant application both in the study and in the field. But, even then, you will not always be able to spot out the correct, or the most "profitable" site for excavation, unless you have an "eye" of an archaeologist. And no archaeologist with an "eye" is likely to know previously—i.e., previous to his success—that he has really an "eye"! Again, if you have it, your "eye" is sometimes likely to deceive you. Thus, there is always an element of luck, attending the business of an excavator. But then, if you are likely to be deceived, you must know how to withdraw. A retreat in time is

better than a complete rout at the end, in this field too. It is an art to retreat in good time. But then, if Howard Carter had withdrawn "in time", he would never have unearthed for us the real glory and magnificence of Tut-anhk-Amen's Tomb.

Often the archaeologist's decision to confine himself to what he considers as the most "profitable" spot of excavation arises, especially in India, out of the finances he has at his disposal. Since, unfortunately in India and in some other countries, there is a craze for antiquarianism rather than for really scientific archaeology, the activities of both official and non-official archaeologists have often been guided in the past by such "practical considerations" as the collection of antiquities etc. The lack of funds, coupled with the need of providing the public with attractive finds, resulted in the earlier days of archaeological activities in a sort of "enlightened vandalism". Even to this day, there is still a tendency observable in India, to dig out a whole site—apparently to study the site "thoroughly"—to collect all the antiquities that it can yield. That is neither necessary nor scientific. *Your object in excavating is not to accumulate innumerable examples of the same thing, but to find out a chronological and historical sequence of the things dug out. The main purpose of an excavation must never be to collect antiquities, but to determine the history of a site.* It is not, therefore, necessary for one's purpose to excavate the whole of a site, exhausting all its possibilities. On the contrary, he should—and in a number of countries, he nowadays usually does—concentrate on and utilize a small portion of the site to be excavated, not exceeding 10 or 20 per cent of it; and he leaves the remainder for future excavators.¹ An excavator^{*} must never forget his duties towards posterity, and must never deprive the future excavator of the means of checking up his own results. He must not also forget that the future archaeologist, living in a more prosperous world, and equipped with better scientific means, would be able to do greater scientific justice to the site he wishes to exhaust. Otherwise, with all his scientific accuracy, the future archaeologist would judge his own activities as acts of "enlightened vandalism", even as he deems those of some of the earlier archaeologists.

Another incidental word of warning would not be, we believe, altogether out of place here. There is a modern school of young archaeologists in India, that has been fortunate in getting trained early in the latest scientific methods of modern field archaeology, and that are, therefore, apt to jeer at the lack of scientific accuracy

^{1.} *Outline of Anthropology* (New York, 1948), p. 81

of the scholars of bygone generations, without caring either to assess the difficulties and the historical handicaps in the achievements of those generations, or to view critically the defects and demerits in their own contributions. The whole history of the development of the techniques of archaeology, or of the primary requirements of backward nations in this field, and the course of development of archaeological studies in such nations, and, indeed, anywhere else,² are totally forgotten. Scant respect is shown to those masters of the past, who brought out before the public gaze the "wood", which alone now makes it possible for them to paint patiently and minutely the details of various trees in it. Be it added in deference to those scholars of the past, that, but for their all-round scholarship, the public and the Government of India would not have been roused to the extent that they have been, and would have been, perhaps, heedless towards their (the modern scholars') own achievements. The duty of the present-day archaeologists in India is not wantonly to imitate the western pioneers in scientific methods, in jeering at the unscientific methods of the older generations, but rather, while emulating the said pioneers in the achievement of scientific methods, to ape the older generations in their all-round achievements, and to perfect their own mastery over this science, especially by ridding it of any defects.

To return to the method of excavation. Before beginning the excavations proper, the excavator must make careful notes as to the nature of the site he has to handle, and also mark out the portion, he has to excavate, i.e., he tentatively expects to excavate within the time and with the money that he has at his disposal. Excavation of a prehistorical site must naturally differ from that of a historical one in a number of details, in spite of the general similarity of the methods followed in both. Prehistoric sites, burying underneath themselves the relics of the habitation of only a few families, are quite small in area *vis-a-vis* the historical ones, burying underneath those of a whole village, a town or even a city. The former must, therefore, be excavated much more carefully and systematically than the latter, so that not even the minutest detail of historical importance be lost sight of.

As has been pointed out by Prof. Stanley Casson, "no two

2. Cf. Finegan, Intro., p. 5—"The techniques of the science have been developed slowly through actual practice and experimentation. At first attention naturally was attracted by objects of large size and obvious impressiveness; but now even the tiniest pieces of broken pottery are recognized as having their own important story to tell."

ancient sites are exactly similar in nature."³ In conducting any excavation, therefore, you can never ignore geological, climatic and other factors, which must have undoubtedly played an important part in the making of the mound. In fact, sites in different countries must vary considerably from each other. Thus excavations in a sandy desert like that of Africa, or those in the *loess* regions of China, must necessarily differ from those conducted in the regions of Delphi or Athens; and those of the latter regions from those of the mounds that are formed in India and the Near East. The latter are obviously more important from the point of view of an Indian archaeologist. The commonest process of the formation of such mounds is best described in the following words of Prof. Casson:

"Mounds of the Bronze Age and Stone Age in various parts of Europe and Asia, that stand often to the height of forty or fifty feet, are built up slowly and steadily by the repeated collapse of mud-brick houses and by the retention upon a lived-on area of all the rubbish of living people and households. The process can still be seen in operation today in any Balkan village or Asiatic hamlet, where fires, warfare, and occasional abandonment raise the level of each newly constructed village by a foot or so. Many villages in these regions stand on eminences which are simply the relics of earlier dwellings, levelled and rebuilt on time and time again."⁴ If the reader ever witnesses such a site—one such is to be found at Rohtak, not far from Delhi—he will have no doubt that there is really not much need of the "eye" of an archaeologist to know an ancient site; but, of course, the main question would remain as to how ancient it is.

Photography

After a site has been selected for an excavation, the photographer comes into play. It is always necessary to have a number of photographs of the site of excavation, taken from different angles—preferably from the points of the compass—and from different distances (or with different foci), before an excavation has actually commenced. The principle underlying this as well as any other operation, concerning excavation is this: *Nothing, that may*

3 Casson, *Archaeology*, p. 39.

4 Ibid., p. 39. For surface indications of ancient sites, including towns and cemeteries, vid., Prof. Flinders Petrie, *Methods and Limits in Archaeology*, p. 9-13. Note that the Old Testament (*Joshua*, ix, 13) speaks of "the cities that stood on their mounds."

prove to be of the least scientific value, must ever be destroyed, unless it is fully recorded. Photographs must, therefore, be taken of each successive stage of the excavation, as well as of all important objects, structures, vases etc., before they are dismantled or removed. It is equally necessary to make minute notions relating to the depths, distances, strata etc., in which various objects are unearthed. For illustrating such notations, diagrams of all kinds may be found necessary; but the most attractive means of visual representation is undoubtedly photography.

As various sciences advance, they lend a helping hand to archaeology in various ways. In the field of photography, a new vista is opened in the form of aerial photography. And though Col. Beazeley was able to utilize it for the first time in 1917, it came to be definitely recognized as a great aid in surveying and identifying ancient sites, in marking out various stages in excavation and so forth, only since 1922.⁵ Contours, that are invisible from the ground itself, often become visible from some height, and, under favourable circumstances, are faithfully recorded by aerial photographs. Even balloon-photography has been occasionally used with considerable success, by sending up a "captive balloon" with a camera suspended from it. Swift and extensive exploratory surveys are rendered possible by photographs taken from aeroplanes. If it is found desirable to study certain contours in details, it is even possible to take recourse to stereoscope photography.⁶

An excellent photograph would add a lot of charm to the exposition proper of the archaeological material. But if the archaeologist himself is an excellent photographer, then he will be able to achieve, on a number of occasions, results, which an archaeologist who is not himself a photographer but is merely aided by one will not be able to do. It is correctly pointed out that photography too has its own limitations. Photography will not be often able to reproduce the finer shades or variations of colours, or even the correct forms of architectural or sculptural pieces, or pottery—much less the shades or variations of colours of the different "cultural strata," laid bare by systematic excavation. The camera "will not turn a corner satisfactorily nor will it reproduce faint indications. Neither will it satisfy as an illustrator of design."⁷ Hence the need of illustrations, by means of the sketches of sections, elevations, plans,

5. E.B. (14), II, p. 250. *The Modern Encyclopedia*, p. 73. Read also O.G.S. Crawford, *Air-Photography for Archaeologists*; *Antiquity*, I, p. 356. E. F. Schmidt, *Flights over Ancient Cities of Iran* (1940).

6. A. W. Judge, *Stereoscopic Photography* (1935), p. 284.

7. E.B. (14), II, p. 234; cf. Clarke, p. 41.

etc., or by means of line-drawings etc. None the less, whenever possible and necessary, the camera must be used not only during the excavation for various purposes, mentioned above, but also after the completion of it, and for illustrating or recording all sorts of objects, ornaments etc., before and after giving them chemical treatment. In short, as is briefly stated by one authority, "A very complete photographic record is necessary, but it must not be allowed to take the place of plans and sections to scale which should be accurate, clear and adaptable to reproduction in print."⁸ A register of all the photographs taken at the site must be maintained, with proper numbering etc., of each photograph.

Only after photographing the necessary aspects of the mound, from all the important angles, can we begin the excavation proper

Survey

First of all, however, the location of the excavation site with reference to some permanent landmark needs be determined. Here surveying plays an important role. It is, indeed, not without reason that an authority states: "In the present day archaeological work, the knowledge of the historian and the skill of the engineer are combined with the zeal of the antiquarian."⁹

An archaeologist must, therefore, be familiar with the usual methods of surveying, viz,

- (1) *Chain-survey*, effected by means of measuring the off-sets from the lines terminated by (and joining) convenient points, usually within the area to be surveyed;
- (2) *Plane-table survey*, done by means of a plane-table, which is "merely a flat board. attached to a tripod." "Plane tables designed for large-scale surveying often include a ball and socket joint for levelling, and an instrumental slow motion in azimuth. . . . The principal accessory to the plane-table is the sight vane or alidade, which is merely a ruler with sighting vanes, which can be raised or lowered at will."¹⁰
- (3) *Theodolite-survey*, effected by means of an instrument called theodolite—fitted with verniers or micrometer microscopes-- which makes large-scale surveying possible, by running chains of triangles: The country is first reconnoitred, mutually inter-visible stations marked out at convenient distances, and the whole area is then covered with a net-work of triangles, a

8. *Antiquity*, IV (1939), p. 174.

9. *The Columbia Encyclopaedia*, p. 85.

10. E. B. (14), on "Plane-table".

start being made from some "base-line".¹¹ "At the apices of these triangles, horizontal and vertical angles would be observed with a theodolite," by means of which, various intersecting points, lending themselves to the construction of triangles are noted down.¹²

Secondly, a "datum line" for the whole site has to be fixed, with reference to some permanent landmarks, preferably natural eminences. This is the horizontal base-line for measuring all subsequent altitudinal distances to be reckoned either as "depths" or "heights." It is with reference to this "datum line" that the elevation of all points in the field, before, during or after excavation, or the "depth" of the exact find-spot of any object is given.

Thirdly, squares of 10 feet are marked out by means of pegs, and are then named—as in map-drawing—A1, A2, A3; B1, B2, B3; etc. (See Fig. 1). It is with reference to these squares that notations with regard to the exact find-spot of any object on the expanse of the excavation-field are to be made. Perpendicular distance of the exact find-spot of the object dug out is measured from the two nearest sides (or border lines) of the square, in which the object is found. These squares also enable one to draw the plans of the structures unearthed. Like photography surveying and draftsmanship form essential qualifications in the equipment of a field archaeologist.

Method of Excavation

Excavation may at first be commenced with light pick-axes and shovels, but soon, when one gets down to cultural strata, one may be required to take leave of these implements, and take up knives, penknives, small handy "scrapers" (the modern ones, and not the prehistoric ones!) etc. While commencing his operation, the excavator leaves out, in the very beginning a strip (usually measuring about a foot in breadth) along each side of the square untouched. When two or more consecutive squares are thus dug out, leaving these strips untouched, "side-walls" two feet in width, emerge during the course of the excavation itself. These "side-walls" must be continually scraped by means of a knife or a penknife, as the excavation goes deeper, in order to obtain an accurate idea as to the "strata" or layers, that go to form that mound. Each of these strata embodies in itself the history of a period, howso-

11 Ibid., XX, p. 610

12. Theodolites are of the following three varieties: the transit theodolite the Y theodolite, and the Everest theodolite

Fig. 1:-Marking of Squares

A ₁	B ₁	C ₁	D ₁	E ₁	F ₁	G ₁	H ₁
A ₂	B ₂	C ₂	D ₂	E ₂	F ₂	G ₂	H ₂
A ₃	B ₃	C ₃	D ₃	E ₃	F ₃	G ₃	H ₃
A ₄	B ₄	C ₄	D ₄	E ₄	F ₄	G ₄	H ₄
A ₅	B ₅	C ₅	D ₅	F ₅	F ₅	G ₅	H ₅

The exact find-spot of any object can be determined only when, in addition to the depth, its exact location in any such square is given with reference to the x and y lines. Thus, if an object is found, say, in the square D₄, its distance, measured by dropping perpendiculars on the x and y sides of that square, must be given.

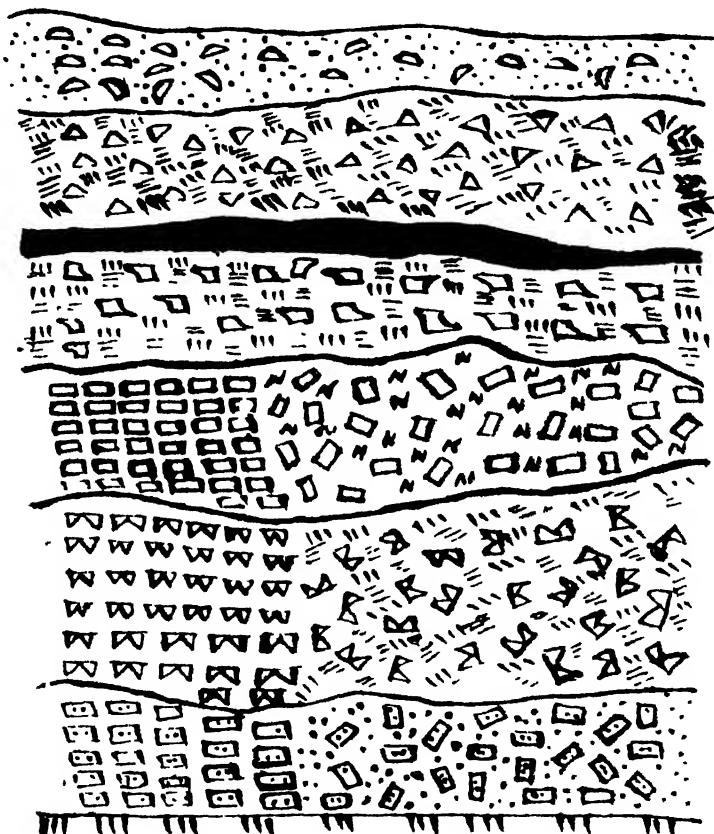
ever brief, and it is on the basis of these alone that one is able to correlate historically or chronologically a number of isolated finds (or unstable objects) with each other.

While most of these strata are being destroyed during the course of excavation, those visible in the "side-wall" offer us the only indication as to their formation: They serve as an index to the formation of that mound, and are so many cross-sections across it. Every object unearthed ∵ the excavation must be carefully jotted down in the context of the soil, the colour and texture of which must be carefully noted down. Such a record, together with the notations referred to above, enables us to correlate approximately the strata dug out with those visible on the "side-walls" and the objects found, with each other. (See Fig. 2).

Sketches of these strata, accompanied by notes, concerning their texture and colour, the antiquities unearthed in each of them, etc., must be drawn to scale. One may also note down one's impressions about the relation of various strata with the structures and important objects met with in excavation. All this is entered in a "pit-register", which is a sort of a diary to be maintained by the excavator of each pit. Correlation of various strata in different squares or "pits" with each other, as well as with the antiquities and the "soils" of the pits themselves—as far as this latter is feasible—should be achieved. This becomes possible only on the strength

A Simplified Diagram of Stratification. (Fig. 2)

[To facilitate an easy grasp of such diagrams, standardisation of the method of representation has become a desideratum. The following conventions will be found useful:— 1) Different strata should be marked distinctly. 2) Different objects should be marked differently. 3) Some standard or conventional method of representing different types of soils, such as sandy gravel, rubble-mixed, loamy, ash-made, etc., differently needs be adopted.]



1. A stratum of sandy gravel containing stray fragments of non-descript antiquities.
2. A stratum of loose grey earth, containing pot-shards.
3. A stratum of black soil, made of ashes.
4. A stratum of hard loamy soil, containing terra-cotta antiquities.
5. A stratum, containing a structure of unbaked bricks and rubble mixed with loose, unfired, bricks or brick-bats.
6. A stratum, containing a stone-structure and loose grey earth, containing loose, fashioned stones.
7. A stratum, containing a structure built of burnt bricks, and sandy gravel, mixed with loose burnt bricks or brick-bats.
8. Virgin soil.

of the accuracy one is able to achieve in determining the strata in the "side-walls" and in maintaining faithful "pit-registers".

It is also desirable that similar sketches of the strata on the "side-walls", drawn to scale, etc., are made in a fair hand on large separate sheets, each of which is devoted to one single "pit". Obviously, the "depths" of these strata are measured or marked out with reference to the "datum-line".

A full description of the object found—howsoever small or unimportant looking it may be—is desirable. This description takes into cognizance remarks about the "square number" of the pit (A1, A2, etc.), the texture and colour of the soil, the stratum on the "side-wall" with which it can be (later) correlated, the exact "depth" of the find-spot from the "datum-line," the perpendicular distance from the x and y sides of the square, the objects associated with the find etc. For entering all this description, cards of a convenient size (usually 6" by 4") are used, one card being devoted to the description of each object. The date and the name of the site are also entered, and if possible, a rough sketch of the object is immediately made on the spot on one side of the card. The exact measurement of the object and the accurate description of its nature, colour etc., cannot obviously be given in these "site cards", but they must be given on the fair duplicates of the same maintained in the field-laboratory. (See Fig. 3). It may be found profitable to have smaller cards (of the size of 4" by 3") for entering the description of smaller antiquities, especially while making the duplicates. If it is not possible to make fair duplicates at the site of the excavation itself (that is, in the laboratory near the excavation-field) then a register, in which all the "site cards" are properly indexed and in which important details concerning each object are entered, should be maintained.

All these records do not dispense with the need of a diary (to be maintained by the chief excavator) which must contain a day-to-day account of the progress of the work accomplished, of the important objects or structures met with and of the important conclusions arrived at. This diary, or the "site register", as it is sometimes called, will naturally contain a number of tentatively drawn wrong conclusions, but it will also contain a number of statements of facts, which may help the excavator ultimately to check such conclusions, and even others, drawn independently from a careful examination of other records maintained in the field. Persons, confining themselves to a single pit, are not always able to observe what others, who are in a position to view the general aspects of a number of pits, are able to do.

Fig. 3.—*Site-Card* (Obverse)

← 4" →

Site	--	S. No.
Mound		Date
Pit	-	Group
Stratum		
Depth		
Loc (ation)		
Cor (relation)		
1		
2		
3		
Object		
Meas (urements)		
As (sociated) Ob (jects)		
Deser (ption)		

Site-cards give you all the necessary details about the objects at once—in fact, all the relevant data for narrating the history of any objects.

A clarification of the notations on a site-card is given below, though while printing such a card, only the afore-given indications need be mentioned.

NOTATIONS IN THE "SITE-CARD"

Name of the Site, District, etc.	<i>Serial Number of Card</i>
Name of the Mound or Locality (if any)	<i>Date of Excavation</i>
Square-number of the Pit	<i>Group-basis of Classification.</i>
Stratum in which the object is found, colour or texture of the soil, etc.	
Depth or Height from the "Datum-Line".	
Distance from x and y sides of the square, running north-south and east-west.	
Correlation with structures or with other strata, in vicinity, if any.	
Name of the Object.	
Approximate measurements of the Object.	
Objects, found in association, with their location, etc.	
Colour, form, texture, material etc., of the Object.	

This may be supposed to complete the general outline of the common method of excavation. Yet the actual operation, carried out scientifically, is not so easy or simple as it would appear on paper. We have taken it for granted here that the actual field of excavation is a very small one—say, a site of pre-historic times—and, therefore, easily manageable, with only a few expert hands to aid the chief excavator. With sufficient funds and sufficient time, one will be able to do almost ideal justice to such a site with adequate expert aid. But in India, a number of social and economic factors, resulting in the lack of adequate personnel and of finances, in the lack of co-ordination of effort of even well-trained archaeologists, in a few hands trying to attempt too much, and in fact, trying to establish a virtual monopoly over archaeological field-research by keeping others out of the field, have made it impossible even to think of such an ideal. With each archaeologist from the erstwhile states, from private institutes etc., trying to exploit as much of any historical site as he can with the funds available to him, and working in a competitive spirit of a cut-throat type,

sometimes even without any real sense of national heritage, whole areas are likely to be shorn of ancient sites within a short time.¹ Recently, this sort of "enlightened vandalism" has been sought to be checked by official archaeologists through almost monopolistic regulations. Yet, for one who knows, it is quite clear that where things go by jobbery or nepotism, many trained archaeologists (amongst whom the author of the present work can, he fondly imagines, legitimately include himself) must ever remain idle whereas others, not so well-qualified, will have all the laurels for themselves. Such a state of affairs, that prevails in India without the world knowing about it, cannot but have serious repercussions on archaeological research as a whole, and is quite incompatible with the boast that we care very much for our national culture of yore.

Again, the actual operation of an excavation is rendered complicated and difficult by a number of other factors. Acquisition of a site of excavation, paying the due compensation for it to the landlord (even if it be for the period of its excavation) preventing any vandalism at the hands of zealous antiquarians, curio-hunters and grave-diggers after the importance of that site has come to light, protection of all the antiquities, precious or otherwise, buried or exhumed,—these are only some of the most important administrative problems that an archaeologist is frequently faced with. Setting up of tents, arranging for food and even water, fulfilling all sorts of needs of the whole camp, conveying all the antiquities unearthed, to some safer site (such as a local, provincial or central museum for studying them carefully) and such other sundry problems are certainly of no less importance for the successful execution of an excavational operation than any other, apparently more directly connected with it—although the general reader is, perhaps, less likely to appreciate them.

Excavation as an Art

Obviously, the method of excavation outlined above is very costly, and it needs to be faithfully followed in the case of small sites of great importance. All pre-historic sites, being both small and of great importance, need to be tackled by the method described above. But, as seen earlier, the ancient sites of different

13. The late Rao Bahadur K. N. Dikshit, Director-General of Archaeology in India, observed in one of his articles:—"The rapidity with which evidence about pre-historic stone age and iron age man (in South India) is being brought to light and removed by unauthorized (untrained) diggers constitutes a real danger (to Indian archaeology)."



countries often vary considerably from each other, and so do the sites of different periods. Thus, the nature of the sites of the late historical period naturally varies very much from that of the pre-historical mound. And the method that is best suited for a pre-historic site may often be quite unsuitable for a historical one. In the former, even the ashes of a burnt hut, or a mere clod of a few sun-dried bricks may constitute the most valuable archaeological material. Such can hardly be the case with historical sites.

Again, as hinted above, an archaeologist cannot overlook the geological formation of the soil he has to dig in. Excavations in the sandy or loess regions must differ from those in mountainous or alluvial countries. Even in the sub-continent of India, with her varied geological formations in different provinces, different sites of excavation must present totally different problems. Thus a site like the Garhi (ancient Ujjain) situate along the right bank of the Sipra, is undoubtedly an important site, and may in the beginning appear to be very promising, on account of a number of surface finds such as coins, icons, architectural pieces etc., with which the whole area is strewn, and which often make their appearance after a few sharp showers. But if we apply here the afore-mentioned method of "faithfully scientific" excavation, the result is likely to be disastrous; for we are likely to come across nothing except mud in this heavily inundated site, even if we continue digging for over a score of feet. Such a "scientific" excavation would prove here a sheer waste of one's resources, and is, therefore, unscientific. In order to get a tolerably accurate picture of the development of even a part of this city, or the society in it, the excavator may have to cover a somewhat large area. In doing this, if he pursues the "scientific" method, detailed above, the total expenses, incurred on account of a single excavational operation, may run to well over several lakhs of rupees, and the participation of a large number of expert hands may be found essential. Human and financial resources that circumscribe the activities of an excavator would make it altogether impossible for one, wishing to adhere to this "scientific" method, to get any "tolerably accurate picture" (referred to above), for scores of years. *The purpose of an excavation, we must repeat, is not mere accumulation of a number of unrelated, "unsynthesized" details, but an evaluation of the historical trend, based on the correlation and synthesis of the materials unearthed. In such an evaluation, we have to care more for more important details, and less for less important ones.*

Sites in the vicinity of the rivers like the Indus, the Ganges, the Sipra etc., or those along the coast, would present problems to

the excavator totally different from what a site like Taxila (situated in a somewhat rocky area) or a locality in the Deccan, would do. In some of the former sites one may be even required to make use of engines to pump out water from the excavation pits. An excavator is, therefore, often called upon to use his own discretion and not to stick to any one method of "scientific" excavation too rigidly. There are a number of other factors, which make this incumbent upon him; but we shall discuss only a few of them here.

If within a square of 10 feet, a number of structures of different periods crop up, we have got to retain both the side-walls and the structures intact, before we are able to correlate satisfactorily those structures to the various strata of the "side-walls." If, however, one pursues the policy of retaining the "side-walls" unto the very end of the excavation, and digs down, say, up to 25 to 30 feet below the surface of the ground, with a number of brick or stone structures blocking up the area of that square, one would often find oneself in a very small hole, say a couple of feet square. In such a predicament, an accurate correlation of the type detailed above would, as often happened in the recent excavations at Taxila, under the guidance of Dr. E. Mortimer Wheeler, become impossible; and one would be hardly able to form an idea whatsoever as to the relation of various structures, not only with the strata, but also with each other. In such cases, at times even whole squares may be totally blocked by structures; and if this is done by the uppermost or superimposing structures, one can hardly form any idea about the lower ones. The "side-walls" often help such a blocking.

Again, it must never be forgotten, as had often been done in those excavations, that the structures are more important than the "strata" or "layers", so that the latter must in the end be subordinated to the former. Retention of the "side-walls" after their purpose has been fully served, with the careful noting down and sketching of all the important details concerning stratification etc., is, indeed, devoid of any meaning.

Therefore, in a city-site like Taxila, the best method of excavation would be not to confine oneself to the square, but rather to do away with them, immediately (and only after) one finds it necessary with some structures cropping up in the middle of the squares. Of course, this is to be done only after noting down all the relevant details. A correlation of various layers in various squares is very essential for obtaining a clear picture of the cultures of different epochs. Such a correlation can be best obtained by removing the "side-walls". If this is not done, the two-foot

wall, contained between two adjacent "square pits", would compel the excavator to "guess" things, when there is no need of any guess-work. Again, if the side-walls are not removed, they may permanently bury under them a number of precious antiquities, which is so much loss to the scientific world. That area, being supposed to have been excavated, may be left out by all future excavators.

For all these reasons—especially in order to find out the relation of one structure with another—it is necessary to do away with the "side-walls"—*not on all sides, but on one side or only two opposite sides*, until one comes almost to the end of the excavation. Thus, it may be necessary to reduce the squares, say, A1, A2, A3, to a rectangle A1-3, and the squares B1, B2, B5 to B1-3, and so forth. (Such rectangles would be 10' by 20', or 10' by 30', according to the requirements of the excavator). This is done, it should be carefully noted, only after the sides, to be demolished, have been carefully drawn or sketched, in the manner stated above. The demolition of the "side-walls" affords a good deal of elbow room for an excavator, even if some structures crop up.

In a site on the river bank—like that of the Garhi—which is full of mud and lacking in any 'strata' of habitation, it would be even convenient to start digging out rectangles of 10' by 20', or of 10' by 30' etc., at once, instead of reducing squares to rectangles, as described above. In a district which is full of sand, some times this method of stratification would be found wholly out of place. Nay, this would be the case *at times* even while dealing with mounds, burying elevated structures, like temples, "stupas", tombs etc. An excavator is, therefore, often called upon to use his own discretion, and not stick to *any* one method of "scientific" excavation *too rigidly*. Factors such as those arising from dilapidated portions of some elevated mound etc., may occasionally make it impossible to follow the method of stratification very faithfully, at least in initial stages. Again, if signs of habitation are visible near about the base of a mound, say, on the bank of a river, and the upper twenty or twenty-five feet of it appear to contain no vestiges whatsoever of any such habitation, it would be obviously preposterous for an archaeologist to dig out all the portions equally "scientifically", when one's funds are limited, and when the light expected to be thrown by such an excavation would in all likelihood be not very substantial. With all this, the "norm" of the methods of excavation, given above, must never be forgotten.

Further, it is not always possible or even necessary to confine yourself to the area, you may have originally marked out for an ex-

cavation. In one place, you will have to give up the idea of digging any further. In another place, you may come across a structure within the area marked out by you, but this structure may exceed that area, and enter into one of the "side-walls" created by you. In such a case, you will have naturally to follow up the structure. But this you must not do in a haphazard manner, but rather by extending the application of the scientific method that you have been following. You will mark out another square or two after having first sketched the strata in the original "side-walls" and noted all the important details, relating to them. You may have to destroy the side-wall, into which the structure enters or may have to create a number of others. All this would clearly show that excavation is at once an art and a science.

Thus, an excavator may have to take into account a hundred and one factors, including the nature of the soil, the mound or the structure to be excavated, the season most propitious for operation at any particular site,¹⁴ and even the sentiments of the people working under him, as well as of those surrounding him. In a country like India, where even well-educated people are often found sincerely to believe that an excavation is only "digging of graves", or that it is no more than treasure-hunting, and where the unlettered ones are liable to misinterpret the digging out of a pre-historical proto-historical or early historical grave as a mere desecration of a Muslim grave,¹⁵ you cannot always overlook the sentiments of the people, with any advantage either to yourself, or to your colleagues, or to the science that you intend to serve. It is not altogether seldom, that with all the best intentions in the world, you may be misunderstood in a hundred ways. Again, there is the red tape, that you may have to encounter quite unexpectedly at times, where matters concern other departments of the state. In more than one country, petty government officials are known to have often presented "formidable impediments" to work in matters of excavation.¹⁶ Such officials may have to be wooed occasionally for a long time before your mission is fulfilled.

The excavation proper of the site is only one act of the drama. Sorting out of antiquities and pottery, labelling, numbering, treating and carefully preserving them etc., constitute other acts of it.

14. This was hardly a strong point (as far as Indian archaeologists could gather) of Dr. E. Mortimer Wheeler, who could excavate at Taxila in mid winter, and at Pondicherry in summer and rainy season.

15. This indeed happened at Kumbhar Tekri, Ujjain, during Mr. M. B. Garde's excavations at that site.

16. Finegan, p. 5

Discarding the historically worthless fragments, sherds etc., and careful removal of the rest to the place where they could be properly studied, form the epilogue of the drama of a scientific excavation. This drama, too, has a number of side scenes—those of pitching the tents of the excavation party, arranging for their food etc.—to which we have already made a reference, and without which this drama would become an utter failure! There is also an interlude, to which we must refer here in passing, viz that which concerns the dumping of the débris.

Some Practical Hints

This is, of course, a very minor affair like the dress of the actors. Yet any carelessness about it would involve a lot of waste, like that of ill-fitted clothes, and would delay at times the enactment of the play. One must, therefore, be careful in the matter of selection of the spot, which is to be covered by the débris to be thrown, after it is dug out from the excavated area. In the matter of selection of such a spot, one must, of course, be guided by practical considerations that strike one at the site of excavation, or during the course of excavation itself. There are, however, certain general and obvious principles, which will guide the decision of the excavator: (1) The spot to be so covered must not be removed from the area to be excavated by any considerable distance: The less the distance that the basket-carriers have to cover the better. (2) As far as possible—and always, if it is possible—do not dump the débris over the area, which would be required to be exhumed ever in future. "It is important to see that the area over which the débris is to be dumped has first been cleared and recorded. The money spent in Egypt alone in excavating the dump-heaps of earlier excavations would endow more than one archaeological institute."¹⁷

Some other practical hints may also be offered here. A word of warning has already been given to the actors of the main scene, by Prof. Stanley Casson: "The greatest need of all is always for slow and steady work that proceeds at the same pace, not for sudden bouts of furious and exhausting digging. When anything at all sensational emerges, then it is the task of the archaeologist in charge to slow down the process of clearance to a mere scraping, and, if the objects found are delicate, to do the clearance of them himself. Above all, nothing that has begun to emerge from the soil should ever be pulled out. It must be cleared all around in

17. Antiquity, IV (1930), p. 174.

order that the circumstances of its deposit there can be established. It may be in contact with other things, it may be fragile in itself; it is, in short like the corpse in the detective story—it must be left undisturbed until every clue that is near it has been examined."¹⁸ And as in the detective story—or rather, much more so—in the excavations, an accurate recording of all the details, including sketching, taking photographs etc., is indispensable.

Terracotta pieces and other antiquities are frequently liable to be reduced to fragments, if we try to wash or clean them. Some of them may be totally "lost", if we dip them in water, or are careless in cleaning them. It is often desirable to test if such a piece is liable to get cracked, when dipped in water; and this can be done by sprinkling it with a few drops of water. We must thus make sure if it can stand washing. In trying to clean delicate pieces, one must be careful to see that one does not damage it in any way. In other ways also it is necessary to be on guard in handling an antiquity. The writer had once the misfortune of inadvertently picking up, from an entire vessel, only the rim of it, since that vessel, being filled with silver coins, was heavy enough to stick to the ground. All such antiquities must always be lifted after placing one's fingers below the bottom (or the lower portion) of them.

As to the marking of such antiquities at the source, as soon as they are dug out, Prof. Flinders Petrie has given some hints that are worth quoting. "Every bone of a skeleton should be marked, and always on one fixed position for each bone. It is best to trust to writing the reference with China ink on the base or back of most objects; for pottery and coarse things Brunswick black thinned with turpentine is best; for dark stones scratching the number is safest, and also for wet pottery at the time it is found. Jewellers' tag-labels with strings are useful for small objects. It is very unsafe to trust labelling only to the wrapping papers, which may be all thrown away; separate labels should be wrapped with the things if they cannot be marked otherwise."¹⁹

Lastly, in the matters of interpretation, an archaeologist must always guard himself against what is not strictly warranted by his finds, taken in conjunction with all sorts of relevant data, literary or otherwise. It is, perhaps, easy to offer the precept, rather than to follow it oneself, that a "literate" archaeologist should always be on guard that he does not misinterpret literary evidence in the light of archaeological data, or *vice versa*. The best way is not to

18. Casson, *Archaeology*, p. 42 f.

19. F. Petrie, *Methods & Times in Archaeology*, p. 52.

unlearn, but to learn more and still more, about the literary evidence, to sift it, sort it, analyse it and utilise it as scientifically as one can, and not to base one's conclusions on insufficient evidence, as far as one can help it. Prof. Flinders Petrie warns us about the danger in overshooting the mark, when he draws attention to the pitfalls, into which ignorance, aided by excessive imagination, apparently led some of his assistants: "The most needful of all acquisitions is archaeological experience. Without knowing well all the objects that are usually met with in an ancient civilization, there is no possible insight or understanding, the meaning of what is met with cannot be grasped, and the most curious mistakes are made. A cloud is 'very like a whale,' the pre-Christian cross is found everywhere, an arrow-straightener is called a ceremonial staff, an oil-press becomes a sacred trilithon, half a jackal is called a locust, and the lathe chucks become 'coal money.' Of course, the needed experience has to be gradually built up and those who first explore a civilization must work through many mistakes."²⁰

If this is one side of the medal, the other is presented by certain mistakes that unfortunately beset the works even of professional archaeologists, who are obsessed by this or that pet theory, and who naturally read into their finds what is not actually warranted by facts. Such mistakes may often arise out of a deficiency in the understanding of the thought-world of ancient times, or out of a lack of familiarity with relevant ancient documents. We may here draw attention to what appears to us to be a regrettable mistake, based on insufficient familiarity with mythological lore, that appears to have been committed by no less a person than Sir Leonard Woolley, when, following the rationale of Aristotle, he observes: "Taking into consideration all the facts, there could be no doubt that the flood of which we had thus found (during the excavations at Ur of the Chaldees) the only possible evidence was the Flood of Sumerian history and legend, the Flood on which is based the story of Noah."²¹ The Flood mentioned in the mytho-

20. *Ibid.*, p. 3-4.

21. Sir L. Woolley, *Ur of the Chaldees*, p. 23. "It is absurd on account of small and transitory changes, to invoke the upheaval of the whole universe" (Quoted in Calverton, *The Making of Man*, p. 52). For the elucidation of the Flood myth, read our *The Mother Goddess* (Poona, 1943). Sir Leonard also feels that the Patriarch Abraham is said to have lived for 175 years, because some later writer telescoped an earlier Abram, and a later Abraham, into a single personality. Here too, it is, perhaps, his faith in the partial veracity of his own religious texts rather than his familiarity with the methods or characteristics of such texts, that is betrayed. Read his *Ibrahim: Recent Discoveries etc.* (1930).

logical lore of the Sumerians, the Hebrews and the Hindus, was neither Sumerian, nor Hebraic, nor Indian: It was certainly purely cosmological, and it can be very well explained by a student of comparative mythology, in the light of certain obvious natural phenomena. While, therefore, his archaeological data and observations are correct, his inferences, which are apparently based on a misunderstanding, created, perhaps, by a somewhat inaccurate evaluation or insufficient information in the field of comparative mythology, are far from tenable. Another example is that of Dr. H. Frankfort,—an able and scientific excavator and a sound scholar, who, however, failed to realise the original magico-religious or amuletic significance of the cylinder seals of Mesopotamia and its neighbourhood: He takes their “original meaning” as being “already . . . lost”.²²

Here we find ourselves obliged to point out another regrettable mistake, committed by Lt.-Col. Stuart Piggot, in an appendix to an article written by Dr. E. Mortimer Wheeler, the retired Director-General of Archaeology in India, who apparently approved of the former's conclusions. By means of an imaginative “archaeological reconstruction,” Lt.-Col. Piggot has sought to prove that certain figures of “griffins” exhumed at Kumrahār near Patna (ancient Pataliputra), “carved in the round in white sandstone and finished with the well-known ‘Mauryan polish’,” actually belonged to the Imperial Mauryan throne at Pataliputra.²³ We may point out in this connection that quite a number of animal-figures, including those of lions, bulls, horses etc., are known to the students of Indian archaeology as crowning the capitals of Asokan pillars, and that it is with these that the “griffins” are comparable, if merely on stylistic grounds. Further, at the same site, viz Kumrahār, a famous stone pillar, belonging in all probability to the time of Asoka, is also known to have been unearthed. Under these circumstances such an imaginative interpretation, put forth so confidently by Lt.-Col. Piggot and leading to such an important conclusion, is rendered doubtful even as a *prima facie* case. What is worse, here, in respect of these sculptures, Lt.-Col. Piggot does not seem to have gone through the accounts of the two Chinese pilgrims, Fa Hsien and Hsuan Ch'uang, which are available in English and French translations, and in which we actually find an Asokan pillar near Pataliputra, described as being crowned by the figure of a lion. To remove any doubt about the case, the measurements given by

22. *Cylinder Seals* (1939), p. 246.

23. *Ancient India* (A Bulletin of the Arch. Surv. Ind.), No. 4, p. 101.

these two pilgrims in the case of the pillar they visited, correspond almost exactly to the measurements of the Asokan pillar, unearthed at Kumrahan²⁴. But then, Lt.-Col. Piggot's archaeological reconstruction may not surprise anybody who is conversant with the indifference, about ancient Indian literary and epigraphical material and the "literate archaeologists" (versed in them), shown by some top archaeologists.

Pottery

In any excavation pottery easily constitutes the most numerous class of antiquities. Prof. Flinders Petrie has rightly characterized it as "the essential alphabet of archaeology in every land"²⁵. He points out that its easily breakable nature makes it well-nigh impossible for future generations to copy and use any, except the most common and simple types. Like other branches of archaeology, the study of pottery is a highly specialized branch in any country, and should be taken up for study for a whole lifetime. The magnitude of the task of a pottery-expert can be gauged, even if inadequately from the following quotation. In the prehistoric age of Egypt alone there are about a thousand different forms of pottery and when the historic times shall be as fully recorded probably two or three times as many will demand notice²⁶. The credit of elucidating first the importance of "sequence-dating" in pottery belongs, perhaps, to nobody else as much as it does to Prof. Flinders Petrie, who utilized this method of enquiry so successfully in dating the pottery of Egypt and Palestine. "This system enables us to deal with material which is entirely undated otherwise, and the larger the quantity of it the more accurate are the results"²⁷.

The following interesting extracts from an article of Prof. A. H. Sayce which the present writer owes to his father, the late Rao Bahadur K. N. Dikshit, Director-General of Archaeology in India, and in which Prof. Sayce correctly brings out the importance of this new branch of archaeology, deserve to be quoted despite their length.

'The modern science of archaeology has been decisively called the study of pots.' As a matter of fact the study of ancient pottery

²⁴ The argument briefly stated here have been dealt with at length with a few others together with requisite references in our work *The Empire of India. The Vedic and the Monastic* (to be published).

²⁵ *Methods of Archaeology* p. 164.

²⁶ *Ibid.* p. 17.

²⁷ *Methods of Archaeology* p. 120. On sequence-dating vide *ibid.* 127 & *Discusses I* p. 43.

occupies a prominent place in it, and we cannot turn over the pages of a standard archaeological work without constantly coming across photographs and illustrations of the ceramic or reading descriptions of vases and bowls, of coloured ware and fragmentary sherds. Questions of date and origin are made to turn on the presence or absence of some particular form of pottery on a given site, and fierce controversies have arisen over a single fragment of a vessel of clay. A knowledge of ancient pottery is a primary requisite in the scientific excavator and archaeologist of today.

"The reason of this is obvious. Archaeology is an inductive science; its conclusions, therefore, are drawn from the comparison and co-ordination of objects which can be seen and handled, as well as tested by all competent observers. It is built upon what our German friends would call objective facts, and the method it employs is that carefully-disciplined and experimentally-guarded application of the ordinary logic of life which can alone give scientific results...For pottery is practically indestructible. Like the fossils on which the geologist has built up the past history of life upon earth, it is an enduring evidence, when rightly interpreted, of the past history of man. Like the fossils, moreover, it exhibits a multitudinous variety of types and forms. But in all these types and forms there is an underlying unity. The primitive needs of man are everywhere the same, and the powers of mind called in to supply them are also the same. The dish and bowl, the vase and its handles, meet us again and again wherever we go; and the same materials for making them meet us also."²⁸

Prof. Sayce then goes on to observe: "Observation has shown that not only are different tribes or countries distinguished by a difference in their pottery, but that in each tribe or country similar differences distinguish successive periods of time. When to this is added the practical indestructibility of the potsherd, it will easily be seen that a criterion is afforded by it for fixing the age and character of ancient remains, and their relation to other monuments of the past. It is not surprising that a study of pottery has become the sheet-anchor of archaeological chronology, and that the first object of the scientific excavator is to determine the relative succession of the ceramic remains he discovers and their connection with similar remains found elsewhere. Scientific excavation means, before all things, careful observation and record of every piece of pottery, however apparently worthless, which the excavator disinters."²⁹

28. *Archaeology of Cuneiform Inscriptions*, p. 361 (cf. CMI, I, p. 70)

29. *Ibid.*, p. 38

We crave the indulgence of the reader for one more long quotation on the subject of pottery, which, would briefly give him an idea as to the process followed by a village potter: "True pottery is made by moulding carefully prepared clay mixed with something, sand and other micaceous material, or charcoal made from burnt wood or bones, to render it porous, so that the steam when formed may readily escape. Most clays contain a small quantity of iron-salts, and if firing takes place in the presence of air, these oxidize and produce a red colour. If, however, the air is absent when the clay is firing, the colour is usually black or grey."³⁰

It will be understood that the author of this work does not profess to deal with every specialized branch, connected with prehistoric and proto-historic archaeology, in this work. Naturally, for the sake of convenience, he has omitted some of the more specialized aspects of this subject, and refrained even from touching some of the most important branches of this science. In this chapter, our primary aim has been to stimulate or create an intelligent interest in the mind of such students of archaeology as have little or no practical experience of field work, or know only a few details of this difficult branch of archaeology. This has made us omit such more advanced subjects as the classification of pottery, archaeological chemistry, conservation of these relics in the museums, and so on. Nevertheless, we do not feel it quite desirable to proceed without a passing allusion to the problem of conservation, or to pass without notice the question of publication of the results of archaeological work, especially of archaeological excavation.

Conservation

After exhuming the ancient relics of all sorts, including sculptural and architectural ones, terracotta, pottery, lapidary and other works etc., and after having recorded them fully and faithfully in the manner indicated above, the excavator must immediately turn his attention to the preservation of all these antiquities. In matters of preservation, restoration often plays an important part; but this should be resorted to, only in order to make the excavated pieces or objects intelligible. Even in case of larger sculptural pieces and monuments, to be protected or preserved for exhibition or scientific study, restoration has to be effected not merely out of the available ancient fragments, but with the addition of modern

³⁰ E. B. (14), II, p. 244, cf. XVIII, p. 338.

ones. *In such cases, the modern portions should be of a colour and texture, which, though not incompatible with those of the ancient ones, must necessarily be different from the latter.* Such restoration is to be made only to make these pieces or monuments intelligible to the onlooker, and not with a view to "reconstructing" wholly an ancient piece of art. as conceived by a modern archaeologist. If such an aim is adopted, and no distinguishing signs of any reconstructed piece are clearly shown, this is likely to mislead a student of archaeology into thinking that the reconstructed parts are genuine. Such a work of archaeological restoration can be adequately done only by specialists in this line

Publication

Restoration or keeping the excavated relics in the museums is not the end of the tale. Nor merely to make the records at the field or to study these excavated antiquities in the museums or libraries, can be looked upon as the final aim of archaeological studies. Further, as Prof. Flinders Petrie points out, to "empty the contents of note-books on a reader's head is not publishing. A mass of statements which have no point and do not appear to lead to any conclusion or generalisation, cannot be regarded as an efficient publication."³¹

Popularization of archaeology is, indeed, a great desideratum, in many parts of the modern world, especially so in India. Indeed, the following observations of Prof. C. J. Gadd bring out in a very apt manner the "tragedy of archaeological learning" in many parts of the world: "Such are the burdens, which modern notions of archaeological method and publication have cast upon us, and these notions are today almost universally held or submitted to—years of meticulous work and recording in the field, more years of elaborate publication, and the results are enshrined in a library, which both by its bulk and expense is excluded from the possession of all except learned institutions."³²

The best propaganda for the Government of any country is the stimulus it gives to the cultural activities and the results it produces or helps to produce in this direction. In a country like India where even the common people are proud of their glorious heritage, where national leaders are often in the habit of extolling to the skies the great achievements of their ancestors or the historical

31. Flinders Petrie, *Methods & Limit of Archaeology*, p. 50

32. JRAS

traditions bequeathed by them, cultural propaganda should naturally assume the character of publication of scientific works in Indian archaeology and ancient Indian history. Unfortunately, it is in this very field—as the present writer can well testify from his own bitter experience of the past decade—that our propaganda shows itself at its worst. While millions of rupees are being squandered over the publication of altogether futile propaganda stuff scientific publications in at least a number of social sciences, including archaeology, ancient Indian history etc., are held up for years.³³ And there is, with this state of affairs showing no signs of improvement, the danger of at least some of such works never seeing the light of day.

In the end, we may draw the attention of the reader, summarily though, to some of the main principles that must be adhered to, in the publication of the archaeological findings of an excavated site. While maintaining the durability of such scientific reports, they should be made as cheap as possible. A sound enlightenment of public opinion is likely to be achieved by the publication of such works, containing excavation report, museum studies etc., if they are sought to be made easily intelligible and interesting. Clarity of expression, arguments and explanation, ease of reference (effected by means of a proper treatment of the subject matter and by supplying a good index, illustrations etc.)—these are some of the most important requisites of a good archaeological publication for general consumption. But for these qualities, a number of our scientific publications become sometimes unhelpful, not only from the point of view of a layman, but also from that of a student of archaeology. And, above all, such publications must be made available at a cheap price—a factor, which, we believe, is even more important than an attractive get-up.

33 A very small work of ours, entitled 'Archaeology' was purchased by the Government of India in the year 1949, through "The Hundred Books Scheme", but has not yet been published, and no one knows when it will be!

CHAPTER III

EPIGRAPHY

The Role of Epigraphy

IT is regrettable, nevertheless it is true, that there is a tendency in certain quarters to belittle the role of epigraphy in the making of an archaeologist, or in the reconstruction of the history of any nation from archaeological data. To correct this tendency, in the case of Egypt, one authority has correctly posed the question: "If we could not read Egyptian, would our reconstruction of Egypt's history on archaeological grounds alone be likely to be anything near correct, however careful and scientific our method?"¹ And the same question could be put in respect of Mesopotamia and other countries, though in a milder form. It is the absence that often makes us realize the worth of a thing or a person: This adage holds good in the case of those ancient countries, which have their scripts yet undeciphered. How far, for instance, are we able to know for certain about the authors of the Indus Valley civilization, although we possess plenty of material about it? What a flood of light would a satisfactory unravelling of the script of Mohenjodaro mean! Again, do we not find something more than the light of dawn—almost a full daylight in the early history of China, with the steady unravelling of the script of the Shangs? What again would be our knowledge of the period, covered by Dr. Hem Chandra Ray's standard work, *The Dynastic History of Northern India*,—with the numberless dynasties ruling over different parts of India—but for a systematic collection and treatment of the epigraphical records of this time?

Recently, however, the worth of a "literate archaeologist", the hard training required of him, the contributions that he alone is capable of making, his role in the reconstruction of the history of the past, especially in a country like India, where we possess no reliable ancient historical works or documents, but only hundreds of epigraphs, such factors have been grievously ignored and the "literate archaeologist" cast into the background, unrecog-

1. E.P. (14), p. 235.

nized and unhonoured. It is a misfortune of Indian archaeology that certain foreign experts recently brought into India, to aid and direct scientific activities in this field, should have failed to appreciate the above-mentioned merits of a "literate archaeologist", whose place can scarcely be filled in by an "illiterate" one. Things are really worse, that even the functions of an epigraphist are often sadly mistaken in some quarters. It is often forgotten that accuracy in decipherment and critical faculty constitute the most important merits of an epigraphist; that an epigraphist must be primarily a historian, with an insight to help evaluate historical details from mere letters, and an ability to generalize about various aspects of the currents of civilization. One often feels that the whole purpose of an epigraphist's role is misunderstood by many Indian scholars—a factor, that has aided the recent foreign experts' underestimation of the role of an epigraphist in the study of Indian archaeology. It is no wonder, therefore, that those experts failed to grasp the appositeness of the following remarks of an eminent foreign Indologist, who, on the strength of his knowledge of epigraphy, observed correctly about half a century ago as follows: ". . . our knowledge of ancient political history of India is derived not from historical works bequeathed to us by the Hindus, but almost entirely from the patient examination of a large number of records, not written as a rule with any deliberate intention of relating history, that have survived to our time in the shape of inscriptions on stone and copper. And we are chiefly dependent on those records, not only for the political history, but also for nearly all the chronological details that we require in connection with the linguistic, palaeographic, literary, religious, social and administrative developments, and, in short, in connection with every development of research into the past of India."²

What has been urged by this scholar for India may also be urged, in a greater or lesser measure, for other countries. Again, it is not quite seldom that epigraphy has enabled us to determine the tribal or racial character of the authors of various cultural strata at the same place. For instance, the personal names occurring in the tablets unearthed at Nuzi clearly mark out the Hurrian strata from those of their predecessors.³ There are, indeed, a hundred and one instances of this type, which would prove that the work of the excavator would remain incomplete but for the aid of epigraphy. The merit of epigraphy lies in the fact that a

2. I. A. (1901), p. 1; cf. IGI. (1900), II, p. 3.

3. T. J. Meek, *Excavations at Nuzi*

single document often enables one to state precisely something about the chronology of the stratum, in which it be found, relating all the objects of that stratum and others with one another, and with the history of a mound, a town, or even a country. Quite a galaxy of kings, emperors, tribes and peoples passes before our mind's eye in the inscriptive literature of ancient India, as of many other countries.

It is alleged—and we earnestly hope that this allegation is not true—that one of the eminent foreign experts, referred to above as having been brought into India to aid the study of Indian archaeology, posed the following epigrammatic query: “How can epigraphy tell us anything of the art of Ajanta?” It is alleged that the context in which this was uttered clearly showed that it was meant to belittle the role of epigraphy and to prop up the claims of field archaeology. We do not think that the latter stand in need of being propped up at all, and least of all, in this fashion. Those claims stand by their own merits. Such brilliant diatribes can hardly help the cause of science, though they may well serve temporarily to mislead the powers that be, and enable one to fill in departmental posts with persons, not much more conversant in Indian epigraphy than these foreign experts. Before uttering such diatribes, it is necessary to remember that it is mainly our epigraphical and palaeographical knowledge that helps us to know even the approximate dates that can be assigned to the various paintings at Ajanta. Epigraphy is the real sheet-anchor of all chronology in ancient Indian history, as it is in the ancient history of many other countries. Without it, one cannot imagine anything like a reliable history of any branch of Fine Arts in India. Nor is it difficult to ridicule such diatribes by counter-questions like the following: “How can the art of Ajanta tell us anything of epigraphy?” It must be remembered that these two are different fields, not at all conflicting with each other, but in reality supplementing each other. It is the business of an archaeologist not to belittle the role of any one of the different branches of archaeology, including epigraphy, sculpture, architecture, numismatics, study of ceramics etc., but rather to achieve a sort of collaboration of all these branches or the co-ordination of their results, for the fulfilment of his aim, which must be to revive the image of the buried past.

As for epigraphy, the merits of this branch can be stressed briefly in the following manner: All our knowledge of the ancient history of mankind (as, indeed, of all sciences) proceeds from the known to the unknown: and the most definite foundations of the

"known" in this field have been in all countries laid down by epigraphy.

Ancient Scripts: Their Decipherment etc.

What M. Jean Champollion, Dr. Thomas Young, Mr. J. D. Akerblad etc., were to the Egyptian hieroglyphic, or what Mr. G. F. Grotefend, Mr. Edward Hincks, Sir H. G. Rawlinson etc., were to the cuneiform writings of the ancient Babylonians. Mr. James Princep and others were to the ancient Indian script known as the Brahini: they were the first decipherers of these respective scripts. As could be imagined, the thrill of the first unravelling of the writings of our ancestors was rivalled only by the zealous enquiry and intelligent industry of these scholars. Even today the field of such enquiry and industry is not over. Not very long ago, Prof. Bedrich Hrozny of Prague won the admiration of the scholarly world by his brilliant decipherment of the cuneiform Hittite script.¹ To the same scholar belongs the credit of deciphering the hieroglyphic Hittite script also.⁵ But despite the claims made by, or on behalf of, this and other scholars, there probably remain undeciphered the pictographic script of the Indus Valley,⁶ that of Crete,⁷ etc. Some new scripts that are met with in the tablets unearthed at Byblos, about a couple of decades ago, still continue to provide enough field for the ingenuity of the experts in this line.

If by "epigraphy" we generally mean 'study of the material that is written in ancient script,' by "palaeography" we usually understand that branch of it, which concerns itself with the development of the ancient script. Palaeographical study enables us to fix, often within the limit of half a century, or a century, such objects as are inscribed with an epigraph. There is also another noteworthy aspect of palaeographical studies. Half-hearted attempts have been frequently and sporadically made, along what appears to be a correct line, namely, that of connecting,

4. Bedrich Hrozny, *Die Lösung des hethitischen Problems*. (1915). *Die Sprache der Hethiter, ihr Bau und ihre Zugehörigkeit zum indogermanisch-indischen Sprachstamm*. (1917). *Hethitische Keilschrifttafeln aus Boghazkœi in Umschrift und Übersetzung*. (1919).

5. *Les Inscriptions Hittites Hieroglyphiques*, I-III. *Die Entdeckung eines neuen indoeuropäischen Volkes im alten Orient*. (1933). Also cf. I.J. Gelb *Hittite Hieroglyphs*, I-II.

6. B. Hrozny, *Die älteste Völkerwanderung und die proto-indische Zivilisation*. (Prague, 1929). *Inschriften und Kultur der Proto-Indier von Mohenjo-daro und Harappa* (1941-42). *Les inscriptions proto-indiennes*.

7. B. Hrozny, *Kretas und Ionischenlandes Inschriften. Geschichte und Kultur* (Vol. I 1943; II, 1946).

as far as possible, all the known scripts of the ancient world with one another, directly or indirectly. Thus, it appears quite possible to demonstrate the connections between various scripts,⁸ including the pictographic Chinese (of the Shang period), the Egyptian (hieroglyphic.—which later gave rise gradually to the hieratic and demotic scripts),^{8a} the Hittite (hieroglyphic and cuneiform),^{8b} the Cretan or Minoan, the Cypriote, the cuneiform scripts of the Middle East (e.g., those of the Sumerians, the Babylonians, the Assyrians, the Persians etc.), the North Semitic (e.g., the Hebraic, the Phoenician, the Canaanite, the Sinaitic etc.), the Greek, the Brahmi, the South Semitic (Sabaeon or South Arabian, the Safaitic, the Arabic etc.), the Aramaic, the Kharoshthi, the Nabatian etc. It is, indeed, possible to erect a family tree amongst all these, howsoever remote the apparent relations between them. Not only the alphabets but also the numerical symbols prevalent in the ancient world can be, and have often been, satisfactorily connected with each other, revealing graphically a picture of an intense culture-contact in the ancient world."

Origin of the Alphabet

As to the introduction of the alphabets, we shall content ourselves here with quoting only a few passages, including the following from Prof. E. A. Gardner: "The first people, who have invented and used a purely alphabetic system of writing were the Phoenicians, the earliest long Phoenician document being the Moabite stone, dated about 850 B.C., though some fragmentary inscriptions may be considerably earlier. The Greeks borrowed their alphabet from the Phoenicians, with slight modifications about the end of the seventh century B.C., each Greek city adopting it in a different form; and this variation continued until about

8. On the subject of the origin and development of the scripts, the following authorities may be consulted with profit: Edward Clodd, *Story of Alphabet*, (1900). Dr. Isaac Taylor, *The Alphabet: An Account of the Origin and Development of Letters*, I-II, (1865). W. J. Martin, *The Origin of Writing* (1943). A. C. Moorhouse, *Writing and the Alphabet* etc. (London, 1946). D. Diringer, *The Alphabet*, (1940). G. A. Barton, *The Origin and Development of Babylonian Writing*, (1913). A. H. Gardiner, *The Nature and Development of the Egyptian Hieroglyphic Writing*, (J. Egyptian Archaeology, 1915). S. H. Hooke, *The Early History of Writing: "Antiquity"* (1937). I. W. D. Hackh, *The History of Alphabet* (1927). H. Tector, *Writing and the Origins of the Alphabet*, (1931). F. Thureau-Dangin, *Recherches sur l'origine de l'écriture*, (Paris, 1898). H. C. Creel, *The Birth of China*.

8a. See plate I.

8b. See plate II.

9. See *History of Hindu Mathematics* (1935), p. 106.

400 B.C., after which date the Ionic alphabet, which we use to this day in printing and writing Greek, was generally adopted. The Roman alphabet was borrowed with some modification, from that of Cumae and other Chalcidian colonies in Italy."¹⁰ The connection between the Aramaic, the Nabatian, the early South Arabian, the Arabic etc. on the one hand, and that between the Aramaic, the Kharoshthi etc., on the other, appears to have been well established. The Aramaic was the script used by the Aramaeans, "a highly civilized race. By 1000 B.C., they were using alphabetic writing, which they had borrowed from the Phoenicians. It was the earliest system of writing known which employed exclusively alphabetic signs."¹¹

About the Phoenician script, we learn elsewhere: "An example of this script—the famous Moabite Stone, containing an inscription of a king of Moab in the 9th century B.C.—had long been known to scholars. But when Byblos was excavated in 1924, an inscription was found in the tomb of an early king of Byblos belonging to the 13th century B.C., which differed very little from the writing on the Moabite Stone. Therefore it seems that alphabetic writing, one of the most important of all human inventions, may be credited to one of the vigorous merchant-cities of the Phoenician coast. It was carried by the Phoenician traders to Greece, and thus became the ancestor of all the Western alphabets."^{11a} We shall learn in succeeding pages about the connection between the Greeks and the Phrygians, and while the connection between the Grecian alphabet and the Phoenician alphabet and the debt of the former to the latter are acknowledged on all hands, the following remark would perhaps show the debt of the Phrygian alphabet also to the Phoenician:—"The alphabetic script of the Phrygians bears a closer resemblance to archaic Greek than to Phoenician."^{11b} On the other hand, it has been recognized long ago that many of the Phoenician alphabetic signs are to be derived from the hieratic and ultimately from the hieroglyphic symbols in Egypt. We find in the Webster's Dictionary (p. 2011) the following: "For some of the Egyptian signs, however, the identification with the Phoenician forms is doubtful,

10. Vide *An Outline of Modern Knowledge*, p. 530. Also read the interesting account in Sir E.B. Taylor, *Anthropology*, Vol. I, pp. 138-140. For the latest views, however, read David Diringer, *The Alphabet*. (1949). Also see below in Chapter XIV, about the 'origin of the alphabet.'

11. Breasted, *Ancient Times*, p. 140.

11a. *Oxford Junior Encyclopaedia*, Vol. 1 (Oxford Univ. Press, London, 1948), p. 364, i-ii.

11b. E B (14), XVII, 853. 1

though in general the Egyptian origin of the Phoenician letters is pretty certain." *En passant*, we may refer to the views of Sir Arthur Evans that the Phoenician alphabet itself owed considerably to the Minoan or Cretan alphabetic or semi-alphabetic signs.

The exact relation of the Brahmi script to some of the above-mentioned scripts, e.g., the Phoenician, the South Arabian etc., needs to be studied carefully, before one can elucidate the origin of the Brahmi script very satisfactorily. However, it can be easily and conclusively proved, by dint of studies in Indian palaeography, that the "Brahmi....has developed into all the present Indian alphabets, including Deva-nagari, Kanaress, Tamil, Telugu, as well as the Greater India scripts such as Tibetan, Burmese and Sinhalese."¹²

So far as India is concerned, a thorough-going study of epigraphy would dispel some very common and long-cherished illusions. Among them one may include those concerning the existence of a Vikrama of the year c. 57 B.C., whose bi-millennium was celebrated with éclat, not very long ago by a number of political and social personalities, including Sjt. K. M. Munshi, Pandit Surya Narayan Vyas, and others.^{12a} Another exploded myth, still popular in Western India, concerns "Salivahana," whose name does not occur in this form in any inscription throughout the first millennium A.D. This "Salivahana" is held responsible for the origin of the Saka era, quite irresponsibly, since we know that the latter was initiated and used for the first three centuries by the Saka rulers of Malwa and Kathiawar. Further, he is credited with the defeat of King Vikrama, the supposed originator of the Vikrama Samvat, which, curiously, begins about 135 years earlier than the Saka era. If Prof. Kielhorn has demonstrated long ago the absurdity of making any real king named "Vikrama" the author of the Vikrama Samvat on epigraphical grounds, a scientific study of Indian palaeography would easily show the absurdity of equating "Vishama-sila" with "Vikrama-sila" and further with "Vikrama-

¹² Dr. D. R. Bhandarkar in *Recalling India's Past*, p. 202.

^{12a} Very unfortunately, some highly-placed persons, apparently mcbriated with feelings of nationalism rather than a regard for truth, have, in recent times, propped up again this myth of Vikramaditya of c. 57 B.C., long exploded by the researches of veteran epigraphists like Prof. F. Kielhorn etc. Cf. I.A., XIX (1890), p. 20f.; 166f.; 354f.; XX (1891), p. 124f.; 397f.; etc. Also Attekar in E.I., XXIII, p. 43f.; XXV, p. 118f.; etc., and our articles in *Indian Culture*, VI, p. 10ff.; 377f. Annals, Bhandarkar Ori. Res. Inst., XXXII, (1952), p. 14-170; XXXIV (1953), p. 70-112; XXXV (1954); etc. On the other hand, witness the patriotic enterprise of Dr. Raj Bali Pandey in his "Vikramaditya of Ujjavini" (Banaras, 1951), and Dr. R. C. Majumdar's insipid comments in the Preface to that work.

ditya" palaeographically; but since such a study is not taken so very seriously in western Indian Universities as it is in some of the eastern ones (including the University of Calcutta, Banaras Hindu University etc.), such a proposition can pass muster without a single comment for years, even in a world-renowned journal in this part of the country. What we must remember is that epigraphs and forms of letters do not belie themselves, and that the letters, written by the ancient inhabitants of India could be read by themselves and by their descendants of a couple of generations later, without any mistake or misunderstanding.

The study of epigraphy supplies a great corrective to the views of some "orthodox" (or, as some of them would now prefer to call themselves, "heterodox") writers, who would carry some of our religious sects into hoary antiquity, or take back even texts like the Manusmriti, let alone the Vedas, into immemorial times. These scholars (or, will the posterity call them 'ignoramuses'?) would do all this, despite all the archaeological, epigraphical and other evidence to the contrary. Conclusions drawn by such scholars are often due to a lack of scientific discipline of the mind, which defies the need of any scientific accuracy in any observation they make.

On the contrary, the need of absolute accuracy in the study of epigraphy, that we have stressed above, can be best illustrated by the following anecdote, narrated to the present writer by Mr. M. B. Garde, the retired Director of Archaeology in Gwalior. Dr. J. Ph. Vogel, who was one of the foremost scholars in Indian epigraphy of his time, once asked Mr. Garde (who was then a scholar under training) as to which is the first essential qualification of an epigraphist. When Mr. Garde could not properly answer this question, the learned Doctor told him that it is "accuracy". He then asked him again as to which is the second qualification of an epigraphist. When again Mr. Garde failed to answer this properly, he himself offered the reply "accuracy". Finally, when he again put the same question as to the third qualification, Mr. Garde was able to answer it correctly as "accuracy".

Indeed, epigraphy, like mathematics, is not merely an exact science; but it helps us to achieve exactness in observations and keep ourselves on guard about a number of statements that contain no more than half truths. To the great sorrow of an archaeologist, such statements about ancient history and archaeology are becoming proportionately as common an occurrence in this world of modern scribes—where the ancient scribe is not at all heard—as are the half-truths or misleading statements in the realm of

politics. Perhaps, it is only seldom that in this modern world, we need speak the truth, at any rate the full truth, whatever the subject, ancient or modern!

Materials used for Writing

As to the materials, used by the ancient man for writing, they consist of a variety of objects. Some of the earliest epigraphs in Egypt, for instance, are those found on the inner surface of the royal tombs. In China, the earliest records found are those on the oracle bones, which consist chiefly of tortoise-shells, and bones and scapulae of buffaloes. In Mesopotamia, as well as in India, the earliest writing is to be found on the seals of haematite, agate, steatite, chalcedony, faience, marble, alabaster, serpentine, conch-shell, etc. The custom of recording the royal edicts on the surface of a rock is first known in ancient Egypt; and it cannot be without significance that both in Persia and in India, this custom is to be met with in the earliest historical epoch. Stone was by far the most favoured of the materials, used for recording important royal edicts; and even white marble is found used for this purpose in both Greece and Italy.

Bricks, bearing names and titles of a number of Assyrian kings, that ruled from about 900 B.C. to about 650 B.C., have been found in Ashshur (or Assur), Nineveh, Tarbis, and other places. Such bricks often help us not only in respect of chronological or dynastic history of Assyria, but also in that of its architectural history. In India, there are at least two places, viz., Nalanda and Gopalpur (Gorakhpur District, U. P.), where a few inscribed bricks have been unearthed.

In Egypt, Greece, India and many other countries, pot-sherds, often known under the Greek name *ostraka*, dug out from ancient sites, are known to bear inscribed letters. In Egypt, "ostraka" is the name given also to the pieces of white lime-stone of a fine texture, that were used by the ancient Egyptians for the purpose of writing. Pot-sherds were used in Egypt for writing at all periods of its ancient history; but they became common only in the Ptolemaic period. They were chiefly used there for business purpose, for recording receipts, acquittances etc. In Greece, quite a considerable number of vases are found "signed in the black-and red-figure styles"¹³ with the names of the potters themselves, or their masters, or of the painters, who decorated them. A study

13. Gude: GR.I, p. 169.

of these names has revealed that, of the signed painted vases, unearthed by the excavator's spade in Greece, about half come from only six factories at Athens.¹⁴ That notorious instance of the ostracism of Themistocles illustrates only one of the ways, in which this custom of writing pot-sherds could be occasionally utilized in ancient Greece. The Grecian potters borrowed the style of signing the artist's name from the potters of Crete. At Tell el Duweir, ancient Lachish, were found in 1934-35 about a score important letters, written in ink, on pot-sherds, probably in the early sixth century B.C.; and these have been described as "the first really personal documents in pre-exilic Hebrew writing found in Palestine." Hundreds of sherds, written over with pen and ink, and belonging to the Hellenistic Age, have been unearthed in Egypt. A number of them were probably used for writing purposes only after the pots were broken to pieces. Quite a number of important Babylonian and Assyrian records are found inscribed on clay cylinders.

Inscriptions have also been found engraved on metallic objects. Thus in Mesopotamia, solid copper figurines, originally deposited under the foundations of some structures, and unearthed by the excavator's spade, are often found to bear important epigraphs, throwing light on the history of those structures. In China, quite a number of records, inscribed on a variety of bronze objects including weapons and utensils, continue to throw light on the history of that country right from the earliest period of the Chou dynasty. Not only earthenware, but pots of metals also, including those of bronze, silver etc., have been found in a number of countries like India, Italy etc. Bronze plates, referred to by Grecian archaeologists as bronze tablets, have been found both in Greece and in India. In Greece, the earliest of such tablets are known to date as far back as the sixth century B.C., whereas in India, the copper or bronze plates, containing donatory records, are known to have come into vogue only with the age of prosperity ushered in by the empire of the Guptas. The growing cheapness of metals in India is incidentally indicated by the fact that not only the number of such plates, but also their size is, on an average, found to increase with the passing of every century thereafter. If in Mesopotamia and Greece, significant inscriptions are found on the pedestals of the bronze figurines of divinities or some sacred animals like lions, bulls, hares etc., in India, too, an important class of inscriptions is to be found "on pedestals of images and statues and on reli-

caskets."¹⁵

Dr. J. F. Fleet observes: "Inscribed earthenware reliquaries have been found at Bhojpur near the well-known Sanchi in the Bhopal State, Central India, and at Andher in the same neighbourhood. And the first of these is of some interest, because the inscription, recorded on its lid, which was coated with white-wash, was written with ink.... Three earthenware jars, bearing inscriptions in Kharoshthi characters written in ink have been obtained at Palatu-Dheri hillock in the neighbourhood of Charsada, North-West Frontier Province."¹⁶ Dr. Fleet, followed by Dr. D. R. Bhandarkar, notes that the largest single group of ancient Indian inscriptions is that found on copper or bronze plates. He also states: "On bronze, we have some interesting stamps for making seals; and one of them is of particular interest in presenting its legend in three classes of characters, Brahmi, Kharoshthi,.. and Greek."¹⁷

Besides copper and bronze, there are other metals that were also used in India for the purpose of writing. Dr. Fleet notes the existence of a couple of inscriptions on silver, one from the stupa at Bhattiprolu, in Krishna District (Madras), and the other from a stupa at Manikiala, in Rawalpindi District (N.W.F. Province). At Taxila, a few silver plates and one silver vase were found to contain records of the early Kusana periods. The only epigraph on gold, found in India, is "a short Buddhist votive inscription from one of the Stupas or relic-mounds at Gangu near Sir-sukh in the Punjab."¹⁸ Similar records on gold, though seldom, are also known in some other parts of the ancient world. Pillar records like those of Asoka, engraved on monolithic columns, are also known in other parts of the ancient civilized world. But, nowhere, perhaps, in the ancient world do we come across anything like the far-famed Meherauli Iron Pillar, that has known no rusting for more than fifteen hundred years.

This unique monument, which now fitly adorns an attractive site in the vicinity of New Delhi, the capital of India, symbolizes as it were the most glorious period of the ancient history of India. For, from a short but magnificent poem in Sanskrit engraved on it, we learn that it was erected by one Chandra, who, in our opinion, is none else than the famous Vikramaditya alias Chandragupta II of the Gupta dynasty. This pillar belonged originally to a Garuda-

15. IGI (1900), II p. 40

16. Ibid., p. 26.

17. Ibid., p. 25

18. Ibid.

dhvaja—referred to in the inscriptional poem as “Vishnu-dhvajah,”—and was first set up on a hill named Vishnupada (Vishnu-pada-giri), which we have elsewhere identified with a peak of the same name, not far from the Mana pass (leading to the Manas Lake). The “Garuda cap” of this pillar, also of metal (probably bronze), was discovered by us in the vicinity, not of Meherauli, but of the Vishnu-pada hill. This is, perhaps, the largest metal image of Garuda to be worshipped in the whole of India. The pillar itself is a solid iron column, “measuring 25 ft. 8 inches in height,” and is “estimated to weigh more than six tons.”¹⁹ Besides this, there is only one iron pillar, bequeathed to the posterity by the ancient Hindu India: this pillar, of Dhar, though of much bigger dimensions, could not stand the effects of Indian climate and has now broken into pieces.

Thus, inscriptions have been found on all sorts of objects and on a variety of materials: They are found on tombs, temples, stupas, churches, ziggurats, palaces, houses etc., on rocks, pillars, slabs, bricks, precious and semi-precious stones; on icons of divinities, animal figures or their pedestals etc.; on sheets of a number of metals or on metallic objects; and so forth. Among the less durable materials, we find ivory, wooden and other substances of a more perishable nature, used for engraving inscriptions. In ancient Egypt, we learn that “in temple and tomb, there is hardly a wall but bears hieroglyphic inscriptions, and even the common objects of daily life such as toilet utensils, boxes, jewels and weapons, often display the names and titles of their owners or cartouches of the Pharaoh under whom they were made.”²⁰ Similarly in old South Indian temples, we sometimes find whole walls written over with inscriptions.

Invention of papyrus, ink and pen

It is, however, the invention of *papyrus* that must have facilitated the craft of the ancient scribe. Writing in ink was already known in Egypt when the *papyrus* was invented in that country; for potsherds, written over with ink, have been found at Luxor and other places in Egypt, right down from the time of the XIth dynasty. Nay, there is evidence to show that already in the Pyramid Age, scribes of the office of revenue and treasury had begun writing in ink, by means of a pen, made of reed. (Such reed-pens, called “boru” in Marathi, have been used by many of us in Maharashtra hardly a score of years ago.) Ink was made

19. Ibid.

20. A. H. Gardiner, *Egyptian Grammar* (1927, Oxford), p. 11

in early Egypt by mixing soot of blackened pot with vegetable gum.²¹ The use of pen and ink passed on from the Egyptians to the Aramaeans, the Greeks, the Romans etc. The Greeks are known to have fashioned ivory *stili*, and the Romans frequently used those of bronze, besides those of reed. The *papyrus* was made out of the stem of a fibre plant of the same name, that grows to over 20 ft. The stem was split into thin strips, that were joined together by gum or paste into a sort of "smooth, tough, pale-yellow paper."²² One of the longest of such *papyri* is No. 9999 of the British Museum, which is as much as 135 ft. in length.²³

In ancient Palestine, hides were often used as writing material. It was from the hides that Eumenes prepared parchments, when his country was unable to obtain *papyri*. Parchments came to rival *papyri* as writing material, and an important centre of making parchments was established at Pergamon in Asia Minor. Corresponding to the *papyri* that the Greeks and the Romans borrowed from the Egyptians, we find in ancient India bhurja-patras (birch-barks), or tala-patras (or tada-patras) (palm-leaves), the use of which may have been originally suggested by the use of the *papyri* themselves. Some of the earliest examples of the bhurja-patras are to be met with among those found in Chinese Turkestan (or Sin-kiang). A noteworthy example of writing on the birch-bark is to be found in the famous Bower Manuscript, recovered from an ancient site in Kuchar (or Kucha) district (Kashgaria), by Lt. Bower. This manuscript is dated by Dr. Hoernle on palaeographic grounds in about the first half of the fifth century A.D.²⁴

In the end, we shall draw attention to a remarkable Buddhist record, found on a copper-plate, that was excavated in the centre of a famous stupa (called the "Nirvana" stupa), at Kasia (ancient Kusinagara), the place of the Maha-parinirvana (Great Demise) of the Buddha. An interesting fact about this record is that its first line is engraved, while the rest of its lines are only written in ink. This circumstance "reveals how copper-plates were inscribed. The inscription was first written out in ink on the plate, and when the ink dried the plate was given to the engraver to cut the written letters into the metal."²⁵

21 Breasted, *Ancient Times*, p. 43

22. Ibid., pp. 43-44.

23. Guide, EC, p. 6.

24. I A., XXI, p. 37; JASB (1890), Proceedings, p. 221, IG1 (1900), II, p. 10.

25. *Archaeology in India* (1950, New Delhi), pp. 69, 184

CHAPTER IV

INSCRIPTIONAL MATTER

In the last chapter, we referred to the opinion of a foreign expert, who allegedly belittled the role of epigraphy in the study of archaeology. We pointed out there how that opinion is assailable. Some other arguments could be advanced in the same fashion. Until a quarter of a century ago, it was generally believed that the Shang dynasty does not represent a historical epoch, but that it must be relegated to the realm of myth or legend. Recent researches in epigraphy made it possible to resuscitate this line from historical criticism of literary documents. (To explain, this criticism, which is in most cases so helpful, had falsified the position of the Shangs, turning them into a mythical or semi-mythical line). And how much did we know of the Hittites, the Hurrians, and numerous other tribes and nations, before epigraphy came to our aid? In India, but for epigraphy, what would have been the fate of the Yaudheyas? Or, we may even ask, of Asoka? A myriad of such questions throng to our mind as soon as an innocent archaeologist begins to question the importance of epigraphy in ancient Indian history.

But instead of indulging in such polemics, the best answer to the alleged query of that archaeologist would be to point out briefly the nature of the material found in the inscriptions of various countries. Even a slight acquaintance with them would show that inscriptional matter, whether of Egypt, of Mesopotamia, of Greece, or of India, is of the most varied types. Since the ancient world was steeped in religious spirit, practically in all ancient countries we find ample epigraphical material for the reconstruction of the history of religious ideas etc., in the form of charms or spells, or in the form of prayers to, or praise of, divinities etc. Indeed, records of donations to religious monuments or institutions are found all over the ancient world; and they easily comprise the most important class of ancient epigraphs, known to us in India.

Egyptian Inscriptions

The oldest of the religious records in the whole world are probably the so-called "Pyramid Texts", which comprise mainly

the records of the Vth and VIth Dynasties, found inside the royal pyramids. They have proved invaluable for the study of the earliest religious ideas of the Egyptians. Moral and ethical beliefs of the ancient Egyptians are disclosed by such funerary records as the following: (1) "I was not an idler, I was no listener to the counsels of sloth; my name was not heard in the place of reproof....all men respected me; I gave water to the thirsty; I set the wanderer on his path; I took away the oppressor, and put a stop to violence."¹ (2) "I myself was just and being quick to discern His will, I have done good upon earth; I have harboured no prejudice; I have not been wicked, I have not approved of any offence or iniquity; I have taken pleasure in speaking the truth....Pure is my soul....The men of the future, while they live, will be charmed by my remarkable merits."² Indeed, this complacency, with which almost every Egyptian nobleman declares himself as the fortunate possessor of a number of virtues and as being free from all vices, is, as Prof. Rawlinson and Mr. Gillian point out, "most remarkable."³

We learn of the religious ideas of the ancient Egyptians also from certain inscriptions that prescribe formulae in the form of charms and spells. Some of them are incantations, that assure the dead Pharaoh of his position and prerogatives. Others "incorporate the ritual, which was recited in connection with the daily offerings made in the pyramid-temples."⁴ Some, like the *Book of the Netherworld*, consist of spells, concerning the ritual of the divine cult, while others, like the *Book of the Dead*, deal for the most part with funerary spells and hymns to gods.

Some of these spells contain germs of the science of medicine, resembling in this respect those in the Atharva-veda. "From the diagnostics of the Egyptian papyri we can distinguish—even identify, in many cases—about 250 different kinds of diseases."⁵ The largest extant medical work of ancient Egypt is contained in the Papyrus Ebers, now at Leipzig. Dr. B. Ebbell, who has translated it, observes: "Egypt, not Greece, must be considered the original home of the medical art." This papyrus alone describes 170 varieties of diseases. Incantations and application or use of honey, and tinctures or decoctions of simple herbs were largely used,...and the long list of names of plants, herbs, seeds etc..

1. *Ancient Egypt*, p. 41

2. *Ibid.*, pp. 41-42.

3. *Ibid.*, p. 42.

4. *Egyptian Grammar*, p. 12

5. F.R.E., IV, p. 740, i

in the Ebers Papyrus proves that though the Egyptian had little idea of scientific Botany, they had a very wide knowledge of the properties of plants etc.⁶ It will be seen that the ancient Indian system of medicine, viz the Ayur-veda, practised even today, contains a number of features, already met with in this papyrus. The so-called Edwin Smith Papyrus, another famous medical treatise, is "almost entirely surgical."⁷ It is supposed to have been written in the time of Khufu (or Cheops), the author of the Great Pyramid (c. 2800 B.C.). "We seem to see in the whole the mark of a considerable scientific and moral advance on the rest of contemporary society."⁸

Magic is also connected with another science, viz astronomy, in its infancy. We come across lists of planets, the signs of the Zodiac the 36 Dekans etc., the last of which correspond to our 27 Nakshatras, also called Dakshayanis, and represented in our mythology as the daughters of Daksha, the Sky Father.⁹ Calculations in respect of the astral bodies, as well as those concerning the building of the Pyramids etc., involved a study in geometry: We witness, in the ancient Egypt of the Pyramids, the beginnings not only of astronomy and architecture, but also of geometry and other mathematical sciences. Inscriptions incorporating mathematical formulae, lexicographical epigrams or lists, and royal decrees form some of the most important records of early Egypt. We also come across some "simple rules of arithmetic based on the decimal system."¹⁰ Accounts of temples, those of business carried over long distances etc., are sometimes found.

Moral adages, rules of conduct, epigrams etc., comparable with the Confucian Analects of China, or the "Do's and Don'ts" of modern Europe, are also to be met with. The proverbs of Ptah-hotep, a wise man of Egypt, have been partially preserved on an almost contemporary papyrus, and are reckoned among "the oldest monuments of the Egyptian literature extant." What appear to be "school-copies" of these "admonitions of Ptah-hotep" are also found.

Some other records reveal as it were the beginnings of fiction. The famous Leningrad Papyrus of the time of the Middle Kingdom contains the earliest known tale of a ship-wrecked mariner. It appears almost like a prototype of one of the tales of Sindbad. The mariner was cast ashore on an enchanted island, the most

6 Gude: E.C., p. 72.

7 IRVS. (1930), p. 64.

8. ERE. IV, p. 740. ii

9. See M. G., p. 46f; etc

10 Breasted, *Ancient Times*, p. 78

conspicuous inhabitant of which was extremely beautiful snake of a very great length. Another tale of a ship-wrecked mariner, found in another Leningrad papyrus, may well be historical. It represents the journey of Un amon, "who went to Berut to buy cedar wood....but was robbed on his way there."¹¹ Ship-wrecked on his way back, he was cast ashore Cyprus. Equally interesting is the papyrus, which contains the story of an eloquent farmer (fellah),^{11a} who was able to win justice from the king against his official, by sheer force of eloquence, embellished with sparkling metaphors. The tale of Kunala and Tishya-rakshita (the unfaithful consort of Asoka the Great), which we believe to be at least partially historical, and which we find paralleled among the Grecians by that of Hippolytus and Phaedra (the unfaithful wife of Theseus), finds its prototype in the tale of Batau and the wife of his elder brother Anpu.¹² Despite the change in relationship, the similarity betrayed by the Indian and the Egyptian tales is very marked. A number of tales, pertaining to the use of magic, offer us an insight into popular beliefs of the day. Some of them are comparable to some found in the Arabian Nights.¹³ Quite a number of half-preserved stories create in our minds, like half-sung songs or poems, a mixed feeling of wonder, anxiety and longing, never to be fulfilled.

Comparable to the self-laudatory speeches of the Egyptian noblemen, there are the braggadocio-like utterances, put in the mouth of this or that divinity. Many of these offer us the clearest proof of the henotheistic nature of the religion of the ancient Egyptians. Some of these resemble some of the Vedic suktas put in the mouths of Indra and other divinities: In some highly important historical records, we find either the Pharaohs or the divinities bragging of victories over distant lands. In the *Song of Amon* (or Ammon), the god is represented as addressing the king Thotmos III (Tuthmosis III) in the following manner:

"I have come: 'I have caused thee to smite the princes of Zahi
 (Syria)

Thou hast trodden down those, who are in the region of God's land
 (Asia) ...

I have come: I have caused thee to smite the land of the West... .
 Keftiu (Crete) and Asi (? Cilicia) are in fear....

11. Guide: EC, p. 70.

11a. See plate I, no. 2.

12. Ibid., p. 67 [See Euripides, "Hippolytes."] Compare also the story of Joseph and Potiphar's wife, in the Old Testament.

13. Ibid., p. 60.

The land of Mitan (? Mitanni) tremble from fear of thee."¹⁴

The triumph of Seti over the Hittites is sung in the following: "Pharaoh is a jackal, which rushes leaping through the Hittite land....

He has struck down the Asiatics; he has thrown to the ground the Khita...."¹⁵

In another inscription, we find Ramases III (who fought the Purusati or Philistines) declaring: "The infantry, all the choicest troops of the army of Egypt, stood upon the bank, furious as roaring lions; . . . I myself was like the god Mentu, the warlike; . . ."¹⁶

Historical prophesies, similar to those that are to be found in the *Puranas*, about actual events that had already taken place, are also to be met with in some Egyptian documents.¹⁷ At Tel el-Amarna in Upper Egypt were unearthed quite a mass of clay tablets, that contain records of contemporary events like sieges, demands for help from patrons or overlords, true or false professions about allegiance, allegations about adversaries etc., betraying the relations of the Egyptian Pharaohs and various local frontier chieftains. More than half of the Amarna correspondence is taken up by wars, —especially those between the provincial satraps or the governors of frontier towns. There is considerable diplomatic activity in evidence. "The officers in command had orders to interfere as little as possible in local affairs, and to leave the natives to dispute or even to fight among themselves unhindered, so long as their quarrels did not threaten the security of the Pharaoh."¹⁸ If here we come across a piece of the wisdom of the royal court, there is another to be found in the following instructions given by a court scribe to his colleagues: • "If thou art an underling and in the following of a great lord, who is in favour with the god (i.e., the king), know nothing of his former insignificance. Raise not thy heart against him on account of what thou knowest of him afore-time, but rather hold him in awe on account of what has happened to him, for having cometh not of itself: it is the god (i.e., the king) who maketh the great."¹⁹

All this wisdom, however, could not dispel the atmosphere of suspicion and secret conspiracy, that was ever present in the court

14. Guide: EC, p. 68. Mitas were the kings of Mitanni. (See ch. 15).

15. *Ancient Egypt*, p. 235.

16. *Ibid.*, p. 281.

17. *Ibid.*, p. 75; 64.

18. Maspero, *The Struggle of the Nations*, p. 274.

19. Guide: EC, p. 62 f. ('Admonitions of Ptah-hotep'). Compare Mbh. (BORI edn.), IV. 4 6f. where Dhaunya offers similar instructions to Yudhishthira and others.

and the royal household. The *Instructions of King Amonemhet* to his son, Senusret, bear a testimony to this atmosphere: "....be-ware of thy servants, be not familiar with them, nor yet be' alone; it is not wise. If thou sleepest. guard thou thyself thy heart,.... He who ate my food it was who conspired against me....I drove the villains back. But there is none strong at night."²⁰ Students, familiar with the history of China or with that of Kashmir (as given in the *Raja-Taramgini*), or with that of the Muslim rulers of India, will not be surprised in the least at these instructions. That similar precautions were usually taken by the emperors and kings of the early Hindu India is made clear by the writings of two great contemporaries of Chandragupta Maurya, viz, Megashenes, the Greek ambassador at his court, and Chanakya alias Kautilya, the preceptor of that king and the author of the *Kautiliya Arthashastra*. The pattern of court-life, with its intrigues and dangers to royal personages, appears to have remained unchanged at all times and in all climes.

Sententious maxims of Ptah-hotep, the chief minister of a Pharaoh of the IVth Dynasty, include such gems as the following: 'Be not arrogant because of thy knowledge and be not puffed up 'or that thou art a learned man. Take counsel with the ignorant as with the learned.... Goodly discourse is more hidden than 'the precious green stone, and yet is found with slave-girls over the 'hill-stones.'²¹ Quite an essential piece of advice to those that often misuse their intellect to spite humanity.

Inscriptions and the Bible

A number of records like "The Instructions of Ainenemope," "The Maxims of Ani" etc., betray an extraordinary similarity with some chapters in the Old Testament like the Book of Proverbs, the Book of Ecclesiasticus etc. They prove beyond doubt the debt that the Jewish proverbial lore owed to Egypt. "Biblical archaeology", for which societies were formed in Great Britain and elsewhere, has supplied a great incentive, together with a good deal of unwanted bias, in the study of the ancient remains of Egypt, Syria, Palestine and the Near East in general. Noteworthy for Biblical archaeology is an Aramaic letter, written on papyrus with pen and ink, found with similar other documents at Elephantine in Upper Egypt. "Here lived a community of some six or seven hundred Hebrews, some of whom had probably migrated to Egypt

20. Guide E.C. p. 64; cf. p. 63.

21. Finegan, p. 77.

before Nebuchadnezzar destroyed Jerusalem. They had built a temple to Yahveh (Jehoveh) on the banks of the Nile. This letter tells how the jealous Egyptian priests formed a mob, burned the Hebrew temple, and plundered it of its gold and silver vessels. Thereupon the whole Hebrew community sat down in mourning, and for three years they tried in vain to secure permission to rebuild. Then in 407 B.C., their leaders wrote this letter to Bagoas, the Persian governor of Egypt, to permit them to rebuild their ruined temple. They refer by name to persons in Palestine who are also mentioned in the Old Testament.”²²

A great aid to the understanding of the Biblical vocabulary was supplied by the language of the Greek Papyri. With the aid of the latter, Prof. Adolf Deissmann showed that the language of the New Testament was “rather the language of everyday life, the *Kōine* or Common Greek, which was spoken by the ordinary men and women of the Greco-Roman world.”²³ In this use of the more familiar tongue for the propagation of new powerful ideas, the New Testament is not alone, similar cases being well-known to any student of Indology. The study of the Bible received fresh light also from the fact that at Oxyrhynchus (Egypt) were unearthed fragments of a papyrus, written in the 3rd century script, that contained a collection of the sayings of Jesus,²⁴ showing that they were current in Egypt at such an early date.

“In a papyrus of the time of the XIXth Dynasty, a father is seen to admonish his son to become a scribe and to ‘love letters as thy mother.’ He stresses the merits of the easy and comfortable life of a scribe, and contrasts it with the toilsome life of ‘the blacksmith, carpenter, stone-cutter, barber, waterman, fisherman, farm-labourer, gardener, fish-seller, sandal-maker, laundryman etc.’²⁵ The scribe is ‘exempt from all manual labour,’ whereas the smith has his ‘fingers like those of a crocodile,’ on account of that labour. This inscription thus incidentally betrays the existence of so many classes in the contemporary society and their condition and social status, and shows how manual labour was held in contempt by the upper classes in ancient Egypt. In another inscription, both the scribe and the soldier are found complaining of their respective hard lot. Complaints of a similar nature about the life of a scribe (Lekhaka) and that of an accountant (Ganaka) are to be met with in a famous tale about one Upali, narrated in the Buddhist text called Mahavagga. Discussing the prospects of

²² Breasted, *Ancient Times*, p. 215.

²³ Finegan, p. 330. A. Deissmann, *Licht vom Osten*.

²⁴ Finegan, p. 322 f.

Upali, his parents observe: "If he learns 'Lekha,' his fingers will become sore. If he learns 'Ganana,' his breast will become diseased."²⁶ The leisured class of Buddhist India was not pleased even with the leisured life of a scribe!

Mesopotamian Inscriptions

In Mesopotamia also, we find the scribe held in high respect, and neither he nor anybody else grumbling about his lot. One tablet reads: "He who shall excel in tablet-writing shall shine like the sun."²⁷ The business of a scribe was often taken up by men of highest classes of the society: We find sons of *patesis* (or priest-kings) becoming scribes. Eniggal, chief minister under Lugal-anda and Urukagina (variously placed between c. 2900 and 2700 B.C.), also styles himself as a "scribe of the house of woman" or a "scribe of the goddess Bau"—which shows that he prided himself as being a temple-scribe. Similarly, the previous minister Subur also had the title of a "scribe".²⁸ It is clear from Eniggal's titles that the temples of Mesopotamia had each one or more scribes, apparently concerned with the accounts of the property of those temples.

The ancient scribe was generally an inhabitant of the town rather than of the village, since the former offered a greater scope for his activities than the latter. This factor may make his account somewhat one-sided. Also his interests are limited. Nevertheless, it is he, who has laid us under obligation with a mass of material, covering almost every department of life. In Mesopotamia, as in Egypt and elsewhere, his writings throw a flood of light on religious, social, economic and political history of the early metal age. We find in them records of the activities of a number of classes besides his own, such as the *patesis*, courtiers, priests, school-masters, merchants, farmers, workmen, slaves, shepherds, artists, artisans, smiths, potters, masons etc. We gather from them expressions of religious and ethical beliefs, of high moral sentiments and superstitious folly, of domestic virtues and social callousness etc. The rise and fall of petty states in the valleys of the Euphrates and the Tigris, their flowering into kingdoms and empires and their decay and downfall, their prosperity due to plunder and their degeneration due to devastation, all these are faithfully recorded for us by the ancient scribe, often incidentally but vividly. Com-

25. Guide; E.C., p. 63.

26. SBE, XIII, p. 201 f., Bhandarkar, *Lectures on Ancient Indian Numerics*, p. 124.

27. Breasted, *Ancient Times*, p. 137.

28. CAH., I, p. 386.

mercial documents naturally form an important part of the records left by him; and accounts of property, belonging to individuals or to institutions like temples etc., or transactions concerning such property, constitute an equally important part of these records. These records reflect an age in which a close-knit society based on classes had already developed. Naturally, disputes between individuals, between institutions or between states, and measures to avert them, supply the most important focus for the writings of the ancient scribe. Out of the vast number of records, testifying to all sorts of activities of the ancient man in Mesopotamia, we can acquaint ourselves here with only a few typical ones.

Religion and divinities were always an aid in the ancient man's transactions, private or public. Naturally much religious matter is to be found incidentally, in tablets purporting to record secular affairs. We can gather from them interesting information, bearing on cosmological and astral conceptions of the ancient inhabitants of Mesopotamia, on their ideas about divinities and their worship, on fasts, feasts and festivals,²⁹ on the priesthood, the class of sacred prostitutes associated with the temples etc. We come across measures undertaken to protect the property of the temples from the hands of individuals, the plunder of such property by invading armies, the consequences that were at times supposed to have befallen such invaders, and so forth.

Mesopotamians' Belief in the Supernatural

More often than not, the temporal authority of the king was deemed inadequate to ensure the protection of private property, and the aid of religion and numerous divinities had to be invoked, or imprecations threatened against anybody, that should violate the sanctity of such property. Thus one finds that a royal statue may be sought to be protected by invoking divinities "to destroy the posterity of anyone, who should remove the statue."³⁰ Boundary stones with inscriptions, confirming sale, purchase or possession of corn-fields etc., by this or that individual, may be similarly sought to be protected by invocation of divinities and imprecations.³¹ With the development of the economy of the pre-historic metal age civilization, and the resultant growth of the contradictions in it, the number of such crimes against private property probably increased. It has been noticed by certain scholars that in Meso-

29. Guide: B.A.A., pp. 30, 92, 142 f., 159 f., etc

30. Ibid., p. 61

31. Delaporte, *Mesopotamia*, p. 40 f., etc

potamia, the length of such invocatory and imprecatory passages in the inscriptions goes on increasing with the passage of time—a feature, which we may note, is met with in the ancient records of India also. In one such instance in Mesopotamia we find that almost “two columns of this text are occupied with imprecations in which the great gods Anu, Enlil, Ea, Marduk, Nabu, Ramman, Sin, Shamash, Ishtar, Gula, Enurta, Nergal, Ilbaba, Papsukal, and Ishkhara are invoked to curse him that shall remove or destroy this land-mark, or raise any dispute concerning the property with its rightful owner.”³²

Livers of animals, especially those of sheep, appear to have played an important part in divinations and forecasts, and sometimes a clay object, resembling a liver, may be found “inscribed with magical formulae.”³³ Prof. von Adam Falkenstein has dealt at length with the charms and incantations that are to be met with in Sumerian and Accadian inscriptions.³⁴ Some of them are contained in medical texts. Prof. R. Campbell Thompson correctly observes that the “chief difficulty in treating of the subject of disease in Babylonia is to separate the ideas of magic from medicine proper in the native (Assyro-Babylonian) methods of healing. The Assyrian physician never shook himself entirely from the more supernatural side of his profession, and, apart from the magical incantations of the sick, even the more scientific medical texts depend largely on ‘white magic’.... It is, therefore, clear that although many of the recipes in use were efficacious from a purely medical standpoint, they were frequently combined with a series of chanted abracadabra.”³⁵

Other records, containing charms and incantations, are concerned with agriculture, construction of buildings etc. In Accadian incantations, “the powers attacked are no longer the colourless *udug*-embodiments, but living, sharply-outlined demons (*lamastu*) or impersonified powers.... Others are directed against magic or against ill-omened visions: Babylonian magic also undertook what may be called attack or defence, as, for example, love-charms.”³⁶ In a number of Babylonian and Assyrian tablets, we find counter-charms and spells, containing exorcism of witches or warding off of the spells cast on oneself or one’s image by one’s enemies etc. Omens, derived from the appearance of scorpions in

32. Guide: BAA, pp. 67-68

33. Ibid., pp. 120, 118, 111, etc

34. *Der Haupttypen Der Sumerischen Beschworung, Literarisch Untersucht*, (1931).

35. FRE., IV, p. 741.

36. JRAS (1931), p. 922.

the house, from dreams, or from solar eclipses etc., are to be met with in many of these tablets.

Inscriptional aid to Political History of Mesopotamia

A bilingual record, written in Sumerian and Accadian, describes poetically how various divinities had endowed Khammurabi with diverse virtues.³⁷ Lamentations, made either on behalf of some divinity, or by the priests, of some famous temples, after they were looted, or after their *patesis* were vanquished or driven away, form an interesting group of the historical records. Repairs made to old temples, or construction of new ones, after the conquest of an antagonistic town, or the defeat of an invader, and such other topics of great architectural importance, are often recorded in Sumerian, Babylonian, and Assyrian tablets. The sack of Ur at the fall of the third dynasty is lamented over in vivid terms in one of the records, and so is that of Uruk in Nur-ramman's reign, in another of them. The destruction of the town and the kingship of Lagash forms the subject of one of the most beautiful passages in Sumerian literature. Construction of the temple of Umma, by Gimil-Sin, the fourth king of the third dynasty of Ur, after "the king had raised a wall of protection in the west against the incursions of the Amorites, who were pressing down the Euphrates,"³⁸ forms the subject of still another record. Such accounts of destruction and construction, of military conquest or of chronological significance, are often linked with the delineation of the greatness of some divinities or with the lamentations by them. Or else, military expeditions and other historical events are at times reported to such divinities after the fashion of reports made to superiors.

Social Matter in Mesopotamian Inscriptions

Deeds, recording the sale or purchase of a house, or a piece of land, or the exchange thereof, or the division or transfer of ancestral property (including houses, slaves, cattle, sheep, asses etc.), or the dissolution of partnership, or of marriage contracts and such other matters, form an important section of the tablet-inscriptions found in Mesopotamia. Decisions on those matters are often embodied in such inscriptions. Some of them refer to the sale of male or female slaves,³⁹ while others allude to the presenta-

³⁷ Guide, BAA, p. 62.

³⁸ Ibid., p. 61.

³⁹ Ibid., p. 100 f.; 114 f., 145 f., etc.

tion of them by way of dowry to the father-in-law or the mother-in-law.⁴⁰ In a stone tablet, the inventory of the property of a person commences with the "enumeration of nineteen male slaves, including a baker, potter, carpenter, weaver, herdsmen of oxen and asses, and two shepherds."⁴¹ In one record, we find that a person undertakes to supply another with a score of labourers for the purpose of harvesting. In another, we come across the names of several labourers, together with the amount of wages, received by each of them from their shepherd-master, during the season of harvesting. Another glimpse of the contemporary society is afforded by a tablet, that alludes to a farmer, who mortgaged his land and agreed to pay 30 per cent interest per annum. Another tablet refers to some Assyrians lifting, not only cattle and sheep, but even the shepherds! From the tablets of Ur, Lagash, and other localities, we learn of different types of land tenure, of some land being set aside for the support of a temple, or for the maintenance of the personnel attached to a temple, or for being tilled by the tenant-farmer, and so on. Barley, emmer-wheat, bread-wheat, dates etc., appear from these inscriptions to have been the chief products of agriculture in those days. Some inscriptions contain expressions like "the store-house of the king",⁴² "the keeper of the granary at Erech"⁴³ etc., which show that provisions for days of scarcity were made by the early rulers of Mesopotamia.

As Prof. Delaporte points out, the "chief official seems to have been the intendant of the palace, at once the organizer of the enterprises of public interest and agricultural works, the king's treasurer, the steward of the palace and everybody's notary." The tablets mention other nubanda, intendants—that of the god and that of the children—various classes of priests, business agents, judges, custodians of granaries, scribes, overseers, and other officials, whose functions still remain obscure.... Among the workmen and artisans, the perfumer, the currier, the founder, the sculptor of statues, the gem-cutter, the mason, the excavator, and the gardener are mentioned.⁴⁴ In some of the earliest records, viz those of the pre-Sargonic days, the queen is found to possess and administer considerable property of her own. "She had her own palace and took part in the affairs of the State."⁴⁵ Besides

40. Ibid., p. 147.

41. Ibid., p. 60.

42. Ibid., p. 146.

43. Ibid., p. 57.

44. L. Delaporte, *Mesopotamia*, pp. 64-65.

45. Ibid., p. 64.

the queens and the female slaves, the records mention the priestesses, women in charge of various offices, seamstresses etc.

The economic contradictions of this age are reflected in the field of family-life. On the one hand, in the cruel punishments inflicted upon the adulterous housewife (to which reference will be made later) and, on the other hand, in the rise of the class of sacred prostitutes, mentioned in many of these records. The latter reveal the existence of three kinds of prostitutes, viz, the *kizrete*, the *sanhate*, and the *harimatu*. Some tablets, like the following about the *harimatu*, reveal some characteristic traits of such women of easy virtue:

"Marry not a *harimatu*, whose husbands are innumerable
In thy misfortune, she will not succour thee,
Every house into which she entereth, crumbleth away:
He prospereth not who marrieth her."¹⁶

Another group of tablets affords "some insight into the administration of the Babylonian Empire under Khammu-rabi and his immediate successors. We learn that the governors of the great cities received their instructions direct from the king, and that every subject (not excluding the slave?) had the right of appeal in any serious dispute to the king's supreme court at Babylon. The orders issued in these tablets refer to the cleaning and repairs of canals; the transport of oil, wearing apparel, corn, dates, sesame-seed and other produce to Babylon; the providing of crews for barges for transport; the supply of wood for various purposes; the preservation of fishing rights; the shearing of sheep; the restoration of lands to their rightful owners; the restoration of officials and others to their posts; the arrest of insubordinate officials and their despatch to Babylon; the transfer of legal and other cases to Babylon for hearing; the collection of revenue; the audit of accounts etc."¹⁷ Occasionally, one learns from some interesting tablet that "the king sent two officers to inquire into a charge of bribery which had been made against officials of the town Dur-gurgurri, and the money and all other things which formed part of the bribe were to be confiscated and sent to the king at Babylon."¹⁸

Scientific Matter in Mesopotamian Inscriptions

Astronomical tablets, or those inscribed with a calendar, or containing astrological forecasts, or giving maps of the world etc.,

16. Ibid., p. 87

17. Guide B V, p. 68

18. Ibid.

were also unearthed from various ancient towns of Mesopotamia.⁴⁹ Cosmogony occupies a large place on the tablets found in Ashshurbanipal's library at Nineveh. Among these tablets "those which relate to the creation of the world, particularly to the history of the Flood, have acquired notoriety."⁵⁰ A great sensation was created in scholarly circles in December 1872, when Mr. George Smith announced: "A short time back I discovered among the Assyrian tablets in the British Museum an account of the Flood...." "I discovered a portion at least of the Chaldean account of the Deluge." The discovery furnished a great impetus to the study of Biblical archaeology.

Among other Mesopotamian tablets may be mentioned those that contain lexicographical lists, or grammatical exercises, or lists of words from one language (such as the Kassite) accompanied by their equivalents in another language (such as the Babylonian).⁵¹ Multiplication tables and other mathematical exercises are also not wanting among them; and these are said to include quadratic and even cubic equations, geometrical problems, involving calculations of the height of an arc etc.

"A cuneiform list of more than sixty different kinds of vegetables grown in the royal Babylonian gardens of Merodach-Baladan.... (includes the names of) garlic, onions, mint, beans, cardamoms, leeks, pennyroyal, lettuce, dill, saffron, coriander, hyssop, thyme of two kinds, mangold, turnip, radish, lucerne, assafoetida, cucumber and colocynth,. Of the cereals ancient Babylonia possessed the following: emmer spelt (zizu), . . kunashu.. and bututtu....; corn, barley, wheat and sesame."⁵²

A study of some of the earliest of the Mesopotamian records evoked the following observations from Prof. Flinders Petrie: "The most permanent achievement of the Sumnerian was the establishment of the commercial and of sexagesimal division. The accounts, partnerships, loans, pledges, partition of profits, credit for goods, and other formulas of modern commerce, are all descended from the Sumerians . Every clock-face descends from astronomy of the Sumerian, who divided the day by twelve, as the year is divided in twelve months. Every compass card also shows the division by 360, copied from the days in the year."⁵³ Although

49. Ibid., pp. 111, 150, 161, etc.

50. H.H.W., I, p. 510. *The Chaldean Account of the Genesis*, (1873) *Transactions of the Society of Biblical Archaeology* (1875) L. W. King, Seven Tablets of Creation.

51. Guide B.A.A., pp. 111, 121, 123, etc.

52. C.A.H., I, p. 500.

53. *Eastern Exploration Past and Future*, p. 71 f.

strictly speaking, the Sumerian calendar was lunar, its authors appear to have anticipated the Indians in the clever combination of the solar and lunar systems. They recognized, "for business purposes", the solar month of 30 days.⁵⁴

Seals from Cappadocia, which was conquered by some early rulers of Mesopotamia,⁵⁵ evince a definite influence of the latter country, and often possess the same style, or contain identical religious and social beliefs or deal with similar commercial transactions. A number of such tablets, found at Kul-Tepe and other places in Cappadocia, furnish interesting details about trade, payments of dues, contracts of debts etc., in which commercial magnates of far-off lands are often found to participate.⁵⁶ At Boghaz-kuei and other places are found a number of tablets that throw a flood of light on the relation of the Hittites, the Mitannis etc., and also on the religion of some of the earliest Indo-Europeans, known to history.

Grecian Inscriptions

Quite a large class of inscriptions throughout the ancient world—in Egypt, in Mesopotamia, in Syria-Palestine, in Greece, etc.—comprises the decrees of kings or chieftains of states, tribes, cities or towns. Most of them are of a political or social character. In Athens and elsewhere in the Greek world, there appears to have been a regular custom to inscribe the decrees of the State or the Senate on marble or on copper or bronze tablets, and to set them up at the *agora* or the market-place, or else in some other conspicuous place.⁵⁷ An interesting example of this class is furnished by a Grecian bronze tablet^{*} inscription of the latter half of the sixth century B.C., written in the Aeolic dialect. It supplies an interesting material as to the period when the Eleians and Heraeans of Arcadia (Peloponnes) were still not united in a single city:—"The covenant between the Eleians and the Heraeans. There shall be alliance for a hundred years, and it shall begin this year. If either need help, whether in word or deed, they shall stand by each other in all things, and in war. And if they do not stand by each other, the offenders shall pay a talent of silver, to be confiscated to Zeus of Olympus."⁵⁸ Here scholars are reminded of Aristotelian description of a perfect city as a union of several

54. CAH, I, p. 462.

55. *Cuneiform Texts from Cappadocian Tablets in the British Museum* (1921), Vol. I.

56. OMK, p. 530, etc.

57. Guide. GRL, p. 2 f.

villages supplying all the necessities of independent life;⁵⁸ also a glimpse is obtained here of the process by which two or more neighbouring villages often grew into cities, in the ancient days.

Another equally interesting bronze tablet, written in the Locrian dialect of about 440 B.C., reveals a process, by which different warring city-states came to an agreement among themselves after finding that marauding expeditions at each other's cost were beneficial to neither party in the long run. "The citizen of Oceanthia is not to be carried off from the territory of Chaleion, nor the citizen of Chaleion from that of Oceanthia, nor is their property to be carried off on any foray."⁵⁹ A third early Grecian bronze tablet, also in the Locrian dialect, speaks of the relations between the inhabitants of a newly founded colony and those of the mother-state. According to it, the settlers could enjoy full social and religious rights whenever they visited the mother-state, although they were exempted from paying taxes during their absence.⁶⁰ Another typical example is that of a decree "passed in the names of the convention of the Halicarnassians and Salma-kitians, and Lygdamis the tyrant, about 455 B.C., for the purpose of regularising and confirming the possession of real property at Halicarnassos."⁶¹

Another record contains a copy of a decree concerning the national subscription raised "in aid of the Rhodian navy, at a time of grave emergency—perhaps about 200 B.C." The decree itself is followed by the names of the subscribers with their contributions.⁶² Elsewhere, in a dedicatory inscription, we get the names of the city-states that participated in the battle of Plataea. According to another inscription, Alexander the Great dedicated a certain temple to Athena Polias, at Priene in Asia Minor: This inscription is found on a pier, that contains a series of records concerning "boundary disputes between Priene and Samos."⁶³

Indeed, "There is hardly any aspect of religion, or of public or private life, that is not illuminated by the evidence of (Grecian) inscriptions.... we find records of the worship and recognition by the State of various gods: the foundation, endowment, and administration of temples; and innumerable dedications of statues and offerings of all sorts.... Numerous temples and precincts had

58. Ibid. (Pol., I, 18)

59. Guide: GRL, p. 3

60. Ibid., p. 3.

61. Guide: GRA, p. 62

62. Ibid., p. 93

63. Ibid. pp. 61, 93

their own regulations, which were set up in a conspicuous position. There were lists of priests and other officials, and regulations for their appointment, duties and privileges and for ritual of all kinds, might be prescribed.”⁶⁴

Names of donors or of contemporary rulers, signatures of artists etc., often furnish definite material for the reconstruction of the history of sculpture and architecture in ancient Greece. We also find “decrees and specifications of public works of all sorts and building accounts. We have, for instance, the accounts of the building and sculpture of the Parthenon and the Erechtheum.”⁶⁵ Some other inscriptions record the services rendered by this or that hero to this or that state. In some records, a prince like Augustus may be found to emulate his predecessors from other countries like Ramesses III, Darius I, Asoka, Kharavela and others, by recording the important events of his own reign. Sepulchral records form here, as in other countries, quite a large portion of inscriptions. In this country they were often in the form of an epigram. The greatest master of such epigrams is supposed to be one Simonides of Ceos, probably a fictitious figure, but believed by some to be “the author of almost all the sepulchral inscriptions on the warriors, who fell in the Persian wars.”⁶⁶ “Fictitious inscriptions were often written, containing brief criticisms on celebrated men, as poets, philosophers, artists, and their productions.... Of all the Greek varieties of lyric poetry, the epigram was the earliest welcomed at Rome.... Many of such poems are preserved on inscriptions, besides a great quantity in manuscript....”⁶⁷

In Greece, and in some other Mediterranean countries, some papyri, mostly of a late date, have revealed fragments of writings of a number of known and unknown Greek authors, including fragments of the poems of Homer, Sappho, Pindar etc. Portions of the Holy Bible are also found. In Greece also we find some tablets, containing incantations and imprecatory inscriptions, and these are often of lead. “It is....recorded that at the time of the illness of Germanicus, ‘songs and incantations against him, and his name inscribed on leaden tablets’ were found with other apparatus of

64. OMK, p. 530.

65. Ibid.

66. Dr. O. Seyffert, *A Dictionary of Classical Antiquities* (Trs. by Nettleship and Sandys), p. 217. This attribution is doubted by modern scholars, according to the information supplied to the present writer by Dr. G. Patzig of Hamburg, who visited India as a UNESCO scholar, in 1951. Simonides, the author of the epigrams, may well be fictitious.

67. Ibid

witchcraft in the floor and walls of the house."⁶⁸ Such records are often found in the temples of gods and goddesses.

Among other records worthy of note may be included a remarkable letter sent by a loving husband to his wife, who was in the family way. In it he instructs her that if she should give birth to a son, she should preserve the child, but that if a mere daughter was born, she may cast it away! Another instance of similar callousness is contained in the following inscription on a slave's badge: "Hold me, lest I escape, and take me back to my master Viventius in the area of Callistus."⁶⁹ An inscription of the fifth century B.C., unearthed from "the ruins of the temple of Poseidon on Cape Taenaron in Laconia . . . records the dedication by one Theares of a slave named Kleogenes to the temples-service of Poseidon. The names of an *ephoros*, probably an official of the temple, and of a witness are added."⁷⁰

Legal Matter in Egyptian Inscriptions

Records, dealing with laws, or containing legal matter, or alluding to legal cases, provisions, or inhibitions, form by themselves one of the most important classes of ancient inscriptions; and, no doubt, they furnish the most important material for the social history of man. Legal matter also provides an insight into the moral and ethical conceptions of the ruling classes in any society. For instance, it may be by such laws as labour legislations, the state security measures, the fundamental rights of man etc., and oft by any unctuous proclamations or pious protestations, upholding beautiful-looking ideals or creeds, that the future historian will judge the moral and ethical standards of the present day. None the less such protestations and proclamations may well serve as an index to the higher standards, respected in the contemporary society, as a lip-service paid to the nobler thoughts, prevalent in the society. As such, they evidently arise out of the instinct of self-preservation, and, in reality, signify an ideological defeat of such classes as make them. However, they undoubtedly help them to preserve themselves.

It is this very instinct of self-preservation that we find at work in some funerary records of ancient Egypt, some of which have been referred to above.⁷¹ In this place we may note a few more: "I was a good man before the king; I saved the population in the

68. Guide: GR^A, p. 123.

69. Ibid., p. 110. See Guide: GRL, 1.

70. Ibid., p. 41.

71. Supra, p. 48.

dire calamity, which befell all the land; I shielded the weak against the strong, . . . When the dire calamity befell the land, I made the children to live, I established the house, I did for them all such good things as a father does his sons."⁷² This self-laudatory record appears to have been written apparently to deceive the very divinity of Death, and so is the following: "There was no citizen's daughter whom I misused; there was no widow, whom I oppressed; there was no peasant whom I evicted; there was no shepherd whom I expelled, . . . there was none wretched in my community, there was none hungry in my time. . . . I gave to the widow as to her who had a husband; I did not exalt the great above the humble in anything that I gave."⁷³ But as Prof. Rawlinson and Mr. Gilman have pointed out, "notwithstanding all this braggadocio, performance seems to have lagged sadly behind profession."⁷⁴ For despite this, we find in some of the earliest inscriptions of the Iron Age, some of the usually dumb millions murmuring: "We are perishing of hunger, and there are still eighteen days before the next month."⁷⁵ Much the same complaint that we come across these days!

And surprisingly enough, much the same weapon was occasionally used by the famished labour even in those early days! We are told that the supervisor of labour "was prodigal of fair speeches, but as his words were rarely accompanied by deeds, the workmen would not listen to him; they stopped work, left the workshop in turbulent crowds, ran with noisy demonstrations to some public place to hold a meeting. . . . Their overseers followed them; the police commissioners of the locality, the Mazaiu, and the scribes mingled with them and addressed themselves to some of the leaders with whom they might be acquainted. . . . "We will not return," they would say to the peacemakers: "make it clear to your superiors down below there."⁷⁶ The highest authorities would then condescend personally to give them a hearing, and would be occasionally convinced of the justice of their plea or of the force behind that plea: "We went to hear them, and they spoke true words to us."⁷⁷ Quite often, in spite of all the remedies of their supervisors and others, there would be little or no change in the fate of the workers! And the epigraphist is able to listen to the plaintive wail of the down-trodden:- "We are come, urged

72. *Ancient Egypt*, n. 42.

73. Breasted, *Ancient Times*, p. 75. *Ancient Egypt*, p. 115 f.

74. *Ibid.*, n. 43.

75. G. Maspero. *The Struggle of the Nations*, p. 540.

76. *Ibid.*, p. 540.

77. *Ibid.*

by famine urged by thirst, having no more linen, no more oil, no more fish, no more vegetables. Send Pharaoh our master, and send to the king, our lord, that he may provide us with the necessities of life."⁷⁸ Occasionally they would, we learn, even attack the royal granaries, scaling the boundary walls that protected them. At rare moments, the scribe in charge of the royal granaries would be ordered by some wise Pharaoh himself as follows: "See to the corn, which thou hast received, and give some of it to the people of the necropolis."⁷⁹ Occasionally we find the labourers themselves recording with gratitude—of course, through the official scribe—that "rations of wheat were given to us daily."⁸⁰

Among other legal documents, mention may be made of the papyri in the British Museum (Nos. 10221 and 10052) that give accounts of the prosecution of some plunderers of the royal tombs of the XXth dynasty. Another inscription gives us "a most interesting full account of an ancient Egyptian law suit," that took place in the reign of the last king of the XVIIIth dynasty.⁸¹ In some other inscriptions, we come across ample information to reconstruct the judicial organization of the kingdom of Pharaohs. If the king was conceived as the highest judicial authority on earth, the Almighty was conceived as the highest in heaven. The following document, which probably dates as early as the IXth or the Xth dynasty, holds out the conception of eternal justice for all including those who were denied justice in this world, and resembles to a degree some of our own sacred texts in this respect: "As for the court who judge sinner, mark thee that they will not be lenient on that day of judging miserable (uen), in the hour of performing their function. Wretched is he who is accused as one conscious (of sin ?). Put not thy faith in length of years, for they behold a lifetime as an hour. A man survives after death. His deeds are laid beside him for treasure. Eternal is the existence yonder. He who has made light (?) of it is a fool. But he who has reached it without wrong-doing shall exist yonder like a god. stepping forward boldly like the lords of eternity."⁸²

Legal Matter in Mesopotamian Inscriptions

In Mesopotamia also we come across legal concepts since the most ancient times, to which the written records bear a witness

78. Ibid., p. 541.

79. Ibid.

80. Ibid.

81. Guide: EC, p. 76

82. CAH., I, p. 353

Here portions of one of the earliest law-codes, known to history, are found. Written in the Sumerian language, they are known to exist since the days of Uru-Kagina Ur-Engur and Dungi. These laws served as a prototype for the Code of Hammurabi (or Khammurabi), the Babylonian king, and are more or less in the form of judgments over certain litigations.⁸³ The Sumerians appear to have evolved a number of practices and customs, which gradually came to be formulated into law-codes. King Uru-kagina brags of "having suppressed the abuses in the city of Lagash and having delivered his subjects from robbers, murder, the wrong which the strong do to the weak."⁸⁴

The following instances of his laws suffice to bring out their naivety: "If to the subject of the king a fair ass be born and his overlord say 'I will buy it,' and when he buys it, let him say to him 'pay in silver as much as satisfies my heart'." "If the house of a great man joins the house of an (humble) subject of the king and the great man say to him 'I will buy it,' when he buys it, let him say to him 'pay in silver as much as satisfies my heart and my house' . . ."⁸⁵ "These two laws are accompanied by the prov so that if the poor men refuse to sell, the overlord or the great man shall not be angry against them. The king gave the inhabitants of Lagash freedom, he delivered them from murder and violence. The rich man interferred not with the orphan and the widow. Such was the compact made by the king with the god Ningirsu en behalf of his people."⁸⁶

Ur-Engur unified Sumer and Akkad under a single administration, introduced a single system of reckoning in lieu of the diverse local systems previously current, and "made justice to reign."⁸⁷ In a Lagash inscription, he claims: "By the laws of righteousness of Shamaš forever I establish justice."⁸⁸ Another record states: "The righteousness of Ur-Engur, a treasure, was a saying."⁸⁹ Portions of the codes of Ur-Engur and Dungi leave, on the whole, an impression that the laws had undergone a greater systematized codification, since the days of Uru-kagina. None the less, this Sumerian law code "is more primitive and not so well thought out as the later Semitic code" (of Hammurabi). "But," it is noted, "Sumerian justice is often tempered with mercy and

83 Ibid. 1 p. 401, 387

84 Delaporte, *Mésopotamie*, p. 91 cf. 34, 26 27

85 C'II, 1, p. 387.

86 Ibid

87 Ibid 1 148, Delaporte op. cit

88 C'II, 1, p. 436

89 Ibid

is more humane than the Spartan legislation of the Semites."⁹⁰ Another scholar notes that an "Assyrian Code, which seems to be free from Babylonian influence, has been recently discovered, and it shows that the punishments meted out to criminals in Assyria were more severe than those inflicted in Babylonia."⁹¹ Thus chronology clearly bears out the growing severity of class-relationship with the development of economy of the early metal age.

Hammurabi's Code^{"92a} is found on a large diorite stele, unearthed at Susa, on which that king is represented as receiving the laws from the sun-god Shamash. The preamble states: "At the command of Shamash, the great judge of heaven and earth, shall justice reign in the land." Prof. Flinders Petrie observes: "Like other codes, the range and detail of the laws (of Hammurabi) give a precise view of the society of the age. The relative importance of different interests is shown by the number of laws concerning each. Broadly speaking, there is about equal attention to the four subjects of Agriculture, Trade, Women and the family, and Personal condition, while less than half of such importance is given to the law of official position, and also to general property. The distinctive tone is that of town life, and of the country as contributory to that."⁹² In the opinion of another scholar, Hammurabi's Code consists of "an exhaustive set of regulations, dealing with all classes of the population and defining the privileges and responsibilities of each."⁹³ Among other things, it lays down "the fees for surgeons, veterinary surgeons, the wages of builders, brick-makers, tailors, stone-mason, carpenters, boatmen, ox-drivers, herdsmen, shepherds, or labourers, and the hire of oxen and asses."⁹⁴ This Code is also important because of the resemblance it bears to some early law-codes, such as those of Moses, Dracon etc.

Justice was administered through a series of courts, the king constituting the final authority. Instances of the king's personal interest in legal matters are not infrequently met with in these tablets. In Hammurabi's Code, we find the laws about private property, inheritance etc., given in very clear terms. We have already referred to the mass of clay-tablets, that supplement and corroborate the information given by this Code. Such tablets either lay down laws or regulations, or are in the form of "con-

90. Ibid., p. 461.

91. Guide: BAA, p. 26.

91a. See plate II, no. 3.

92. *Eastern Exploration: Past and Future*, (1918), p. 56 +

93. Guide: BAA, p. 63.

94. CAH, I, p. 518.

tracts of private business concerning all the transactions of life, between individuals, . . . contracts of sale or exchange; contracts of loan or hire; acknowledgment of the debts, carrying the guarantee of a mortgage or of chattels."⁹⁵

Many of the laws relate to the sale of slaves. Once the price is fixed, and the slave paid for and delivered, the seal of the owner would be affixed to show that "no annulment of the bargain can now take place."⁹⁶ Some of the curious laws concerning the sale of slaves allowed the sale of one's father under certain peculiar conditions. "It has thus been decided by the sentence of the judge: 'If a son (is authorised) to say to his father: 'Thou art not my father,' he (the son) can sell him, treat him as a forfeit, and give him in payment *like money*.'"⁹⁷

As to the matrimonial laws, they often reveal a sense of justice and fair-play, not always met with even in many advanced communities of these days. The dominance of man is clear enough; yet woman was respected, and her vital interests partially protected by law. The rights and privileges that she enjoyed in the matriarchal society of neolithic times, are already surrendered; she is, however, not yet reduced to serfdom that we witness in much later times. Hammurabi's Code indicates (as pointed out by von M. S. Nicolo) that in his days "two kinds of marriages seem to have existed, one in which the husband and the wife lived together, and the other a relationship in which the woman returned to the house of her father, a state of things due to the failure of the man to provide a home where they could live in common, and the husband had either to live with her or content himself with visits. The latter form of marriage naturally gave the wife a more independent position, and it may have been a more primitive form of marriage than when the wife lived in her husband's house."⁹⁸ Here we have a state of affairs, reminiscent of neolithic times, when matriarchy prevailed. The age of metals was not yet far advanced to make her totally subservient. It is in this light that we can explain the "enlightened" views, met with in the following laws of Hammurabi: "If a man has married a wife, and sickness has seized her, and he has set his face to marry another, he may marry; but his wife whom the sickness has seized he shall not divorce. She shall dwell in the house he has built, and he shall

95. HHW., I, p. 495.

96. HHW., I, p. 497.

97. Ibid., p. 494. (Italics ours).

98. *Beiträge zur Rechtsgeschichte im Bereich der Keilschriftlichen Rechtsquellen* JRAS. (1932), p. 686

support her while she lives . . . If that woman is not content to dwell in the house of her husband, he shall return to her the dowry she brought from her father's house, and she shall go."⁹⁹

Again we learn that "if a man has given to his wife field, orchard, house or goods, and has given her sealed tablet (of authority), then after her husband (has gone to his fate), her children have no claim (upon his property). The mother can give what she leaves behind to the children she prefers. To brothers she shall not give."¹⁰⁰ Still more explicit are some of the following laws, wherein the position of the wife appears to be more enviable than that of her husband: "If a wife (is authorised) to repudiate her husband, and to say to her husband: 'Thou are not my husband,' she can have him thrown into the river. If a man (is authorised) to say to his wife: 'Thou art not my wife,' he can have half a mina of silver paid to him."¹⁰¹ This appears to be reminiscent of the mother rite, in which the "field" of production was not to be lost.

Otherwise, however, we find a weightage in favour of the husband, and the family-unit turning patriarchal: "If a man's wife, dwelling in man's house, has set her face to leave, has been guilty of dissipation, has wasted her house, and has neglected her husband, then she shall be prosecuted. If her husband says, 'she is divorced,' he shall give her nothing for divorce. If her husband says 'she is not divorced,' her husband may espouse another woman, and that woman (the former) shall remain a slave in the house of her husband."¹⁰² Here the position of the man is certainly not unenviable! In addition to the primitive law of "eye for eye, bone for bone, and tooth for tooth", we find "the further punishment of cutting off the hand of anyone, who should strike his father."¹⁰³ But no similar law is laid down for striking one's mother. In addition to a legal wife, enjoying the full status of a housewife, a man could have one or more subsidiary or left-handed alliances. Patriarchal authority over his children was absolute, so that he "could treat his child like a slave, as a chattel to be pledged for debts, to work off the debt for three years, but in this he had the same rights even over a wife."¹⁰⁴ Further, daughters were also to be married at the will and pleasure of their father.

⁹⁹ Edwards, *The World's Earliest Laws*, p. 34

¹⁰⁰ Ibid

¹⁰¹ IIIW, I, p. 484.

¹⁰² C. Edwards, *The World's Earliest Laws*, p. 33

^{103.} IRS. (1032), p. 685.

¹⁰⁴ CAVH, I, p. 525

But for all these laws, and the incidental allusions found in the clay tablets, we would be in almost complete darkness about the exact position of the oppressed classes of those days, domestic and field slaves, about the relations that existed between these and the ruling classes, and about the way the state was governed. Private property was sought to be protected with the utmost ruthlessness of stringent laws. Quite a number of crimes, including stealing "the goods of a god, or a great house," or bringing a "slave of a great house, to pass out of the gate," had capital punishment prescribed for them. Adultery was also to be punished with death, both the man and the woman being drowned, —unless the king pardoned the man and the husband the wife.¹⁰⁵ In connection with the capital punishment, Prof. W. N. Weech observes:—"Death was the penalty for many offences, but it was not always inflicted. Probably the priestess who entered a wine-shop, and the wife who was incurably extravagant escaped more frequently than the builder whose house collapsed and killed its purchaser, or the philanthropist, who harboured a runaway slave. Technically all four were liable to the extreme penalty, together with brigands, temple thieves and sellers of bad beer."¹⁰⁶

Legal Matter in Grecian, Crimean, Cretan and other Inscriptions

This harshness in punishment is comparable to that found in the laws of Dracon, who also laid down capital punishment for a number of offences such as petty thefts etc. Prof. J. B. Bury informs us that Dracon was "appointed by the aristocracy," and was, therefore, "bound to provide for the interest of the rich power-holding class."¹⁰⁷ We also know that Dracon did not at all "change the constitution," but that he borrowed considerably from the then current, unwritten laws of Athens. In the case of the Code of Hammurabi, we find no records as to how the common folk received these fearful laws, either in his own days, or in later times, but in the case of the laws of Dracon, we know the contemporary reaction. Demades, the famous Athenian statesman and orator, won the meed of praise of his contemporaries, when he characterised them as being written "not in ink, but in blood," while another contemporary, Herodicus, observed that they were

¹⁰⁵ McCabe, *The Evolution of Civilization*, p. 55.

¹⁰⁶ *World History. The Growth of Western Civilization*, (New York 1936), p. 10. Read here CAPT., I, p. 517 f.

¹⁰⁷ J. B. Bury, *History of Greece for Beginners*, p. 118.

the laws "not those of a man, but of a dragon,"—obviously intending a pun on the law-maker's name. It was the popular upsurge or the definite signs of a violent revolt that taught "wise Solon" to make laws more to the liking of the commoners. the debtors, free labourers etc.

In Crimea, however, we learn of an uprising of the slaves and the discontent of the masses from inscriptional sources: "At the end of the second century B.C., the Scythian slaves in the Bosporus kingdom rose in revolt. A slave of the Bosporus king, named Saumacus, slew the king and headed the uprising. The revolt was crushed by Diophantus, a general of King Mithridates VI of Pontus, who had come to Khersones to defend it against the Scythians. He captured Saumacus and sent him to Mithridates in Asia Minor. As a sign of their gratitude for the help rendered against the Scythians. the rulers of Khersones erected a bronze statue of Diophantus in the acropolis of the city near the altar of their most revered goddess. An inscription telling of the services and victories of Diophantus was carved on the marble pedestal. The inscription was found among the ruins of Khersones."¹⁰⁸

History speaks of similar revolts in many other countries. According to Prof. J. H. Breasted, "Italy and Sicily were flooded with slaves. The brutal treatment which they received was so unbearable that at various places in Italy they finally rose against their masters. Even when they did not revolt, they were a grave threat to public safety (i.e., to state correctly, to the safety of the upper classes of those days). The lonelier roads of Italy were infested by slave herdsmen. lawless ancient cowboys who robbed and slew and in many districts made it unsafe to live in the country or travel the country roads. The conditions in Sicily were worse than in Italy. In central and southern Sicily the revolting slaves gathered some sixty thousand in number, slew their masters, captured towns, and set up a kingdom. It required a Roman consul at the head of an army and a war lasting several years to subdue them."¹⁰⁹

In literature we come across allusions to a number of such revolts of slaves. as well as to the changes in the structure of the society, together with progressive enactment of laws necessitated by such revolts or threats of such revolts. Some of these laws are known to have been recorded as state decrees; but these inscrip-

108. *1 History of the U.S.S.R.*, Vol. 1, p. 31

109. *Ancient Times*, pp. 567-568

tions have mostly perished. Thus we learn from our literary authorities that the laws of the wise Solon, that tried to ameliorate the conditions of the poorer classes, "cancelled outstanding debts, freed enslaved labourers, and reformed the government,"¹¹⁰ were also preserved, in the form of inscriptions. Unfortunately, however, these inscriptions were engraved on perishable material such as "wooden rollers and triangular tablets." These were preserved at first in the acropolis at Athens, and afterwards in the Town-Hall (or Prytaenum).¹¹¹ We learn that "the earliest laws of Athens were inscribed upon tablets of wood, put together in a pyramidal shape. These owing to their material have perished: but we have some very ancient code of laws preserved on stone, notably at Gortyna in Crete. Here an inscription of great length is incised on the slabs of a theatre-shaped structure in twelve columns of thirty lines each; it is mainly concerned with the law of inheritance, adoption etc."¹¹² About the law-code at Gortyna, we further learn that "if any citizen thought himself unjustly treated, he could appeal to the great code engraved in twelve columns on the inside of the stone wall of the building. It covers the curved surface of the wall for about 30 feet, but extends only as high as would permit it to be read easily. It forms the longest Greek inscription now surviving. This code shows a growing sense of justice towards a debtor, and forbids a creditor to seize a debtor's tools or furniture for debt; this illustrates the tendency among the Greeks in the age of Solon."¹¹³

With critical times ahead, the governments had to introduce progressive legislations. Those that refused to do this were overthrown, and other government that supplanted them had to introduce such legislations. Thus, it is either in times of crisis, or after the passing of such critical times and the establishment of "progressive regimes," that we find laws enacted to fix wages, to fix prices, and to fix punishments for both the rich and the poor—both the oppressors and the oppressed—for any violation of such laws. We have already referred to the laws of Hammurabi, that fixed the wages of the artists, artisans and workers of his time. Speaking of the progressive aspects of these laws, Mr. McCabe states: "A modern worker, at all events, will learn with surprise that in this most ancient code, a minimum wage is fixed for every worker in the kingdom. Nearly a fifth of the code is taken up

110. Weech, *World History*, pp. 67-98.

111. W. Smith, *A History of Greece*, etc. (London, 1900), p. 104.

112. E. B., (14), XII, p. 307.

113. Breasted, *Ancient Times*, p. 304.

with this concern for the workers."¹¹⁴ As to the records fixing prices, we may cite the example of the inscriptions found in a number of places, which are copies of the famous Edict of Diocletian, that laid down fixed prices for the whole Empire.

In the end, taking a bird's-eye view, we may conclude that the earliest mass of epigraphical materials consists mainly of the following five classes of inscriptions: (1) sepulchral inscriptions; (2) religious and mythological records; (3) commercial documents; (4) state documents and historical inscriptions; and, lastly, (5) legal documents. It goes without saying that these classes are neither scientifically comprehensive nor mutually exclusive.

Of these, the first, originally commemorative in character, developed later into all sorts of panegyrics, praising the dead, not so much to please him or his relatives, as to curry favour, on his behalf, with the divinities of death or of the underworld. Many of the sepulchral records contain religious and mythological details, not actually connected with purely funerary aspects of the monuments on which they are found, but likewise intended to win over the same divinities. Besides the sepulchral epigraphs, there are others, especially those found in the *papyri*, wherein religious and mythological material is found recorded, probably in connection with the rites to be performed on occasions of fasts, feasts and festivals.

As to the next two categories, we may remember that trading and raiding were two important methods of social contact since the earliest formation of social units in the history of mankind. They were the means of developing and distributing social wealth; and they themselves reflect, by their mutually contradictory character, as well as by their growth, attempts of mankind to resolve the growing contradictions in the social structure. Trade is the more peaceful means of developing social contact and social wealth; and it is no wonder that some of our earliest documents, at least from the Near East, if not the whole world, refer to commercial transactions. On the other hand, while raids on others' properties must have been carried out by men since the earliest times, it is only organized raids, e.g., those between the states, kingdoms or empires, that concern the student of history, and these attract our attention, almost ever since the beginning of writing. Within the same category are to be included documents, wherein we find defensive and offensive preparations carried out by this or that chieftain, military aid asked for, or given by, one of them to

¹¹⁴ McCabe, *Evolution of Civilization*, p. 55.

another, and so forth. We also find demands of "tributes" or "presents" of essential commodities from their less powerful neighbours. and these commodities include besides golden goblets etc., copper and iron. orcs, or daggers, swords etc., of those metals. Transactions between such states of the earliest "historical times," met with in these inscriptions, speak at times of a number of commodities brought from afar. Such expeditions were often well-armed and well-equipped to meet all eventualities of sea-faring life, and they repaired to distant countries to fetch those commodities generally by trading, but occasionally even by raiding. On a number of occasions, they must have lost their commodities either to the sea-marauders or to the furies of the sea; and we witness sailors of the wrecked ships narrating their accounts. Finally, we come across legal documents of the ancient world, which essentially pertain to the internal business of the state, and which regulate the affairs between different individuals and institutions, throwing, incidentally, a flood of light on the actual living conditions of various classes in the ancient society.

CHAPTER V

INSCRIPTIONS IN INDIA

AT the outset, we must confess that we have not given any special attention to the study of the epigraphical material in India, for the purpose of writing this book, despite the fact that our specialization in Indian epigraphy would have enabled us to do so without much difficulty. The chief reason is that unfortunately at the moment of writing this portion of the present work, we have been somehow deprived of the opportunity of using any good library, containing important works on that subject. This difficulty rendered it impossible for us to undertake an adequate survey of the epigraphical material in India. We may also seek a partial justification of the hurried survey that we are giving below, in the fact that this work is intended mainly as an introduction to the method of archaeology, especially in the field of pre-history and proto-history. Our purpose, in accordance with the defined scope of this work, will be served, if we merely bring out certain general aspects of the epigraphy of India.

The earliest inscriptions, to be found in India, are those of the pictographic seals, found at Harappa, Mohenjo-daro and other Bronze Age sites of the Indus Valley. These inscriptions, though probably not yet correctly deciphered by anybody,¹ appear to belong either to the second or to the third category, out of the five classes of inscriptional documents mentioned about the end of the last chapter. That is, they may have either religious and mythological significance or commercial import.

Our earliest deciphered documents in India consist of a few, stray, "Mauryan" inscriptions, besides those of the emperor Asoka and his grandson Dasaratha. Most of these are written in the Brahmi script, which appears in two slightly differentiated types, that were to develop later on into distinct scripts pertaining to different localities. The future course of development of the Indian scripts would perhaps show that the Brahmi script must have been introduced not more than a few centuries prior to the days of Asoka, to allow for the development that had taken place in the various letters, by his time. Another script, Kharoshthi, in which

¹ See below, our comments and suggestions, in the chapter "Copper and Bronze Age in India."

certain important versions of Asokan edicts are found, had probably come into vogue in certain provinces of his empire, only slightly before his time; since we find evidence about the prevalence of a third script, Aramaic, in that region, even during Asoka's own time. The Aramaic script was the official script of correspondence with the provinces of the empire during the Achamenian (Hakhamanishiya) rule in Persia (or Iran); and it appears to have been almost certainly current in the north-western provinces of India during pre-Asokan period.

The inscriptions of Asoka are unique in a number of ways. They are among the few records in India that inform us as to what the king did for the benefit of the people: In one of his earliest records he tells us what he did especially for trading community, e.g., building good roads over long distances, planting trees (along them) wherever they were wanting, digging wells etc. His inscriptions are also among the very few Indian records that allude to contacts with rulers of foreign countries: They are unique among the ancient Indian documents in referring by name to kings of such distant countries as Syria, Egypt, Macedonia, Cyrene-Libya, and Epirus. It is to these five regions respectively that the kings, Amtiyoka (Antiochus II Theos), Turumaya (Ptolemy II Philadelphus), Amtekina or Amtikini (Antigonus), Maka or Maga (Magas), and Alikasumdara (Alexander II),² mentioned in Asokan records belong. Peaceful contact, by means of trade must have already developed between these countries and India, by Asoka's time. We learn from early Greek accounts that some of the earliest Mauryan monarchs had at their court ambassadors, sent, with an ostensible purpose to collect information of all sorts, by some of their Greek contemporaries. We also learn that one of them viz., Bindusara Amitraghata or Amitraghutin, had asked of a contemporary Greek ruler certain commodities, including "sophists". But Asoka the Great was, perhaps, the only monarch in the whole ancient world to send to distant rulers, not ambassadors, but missionaries; and this, he did, without any ulterior motive of conquering those countries, but only to spread the Divine Law (Dhamma) so dear to his heart. We learn this from his own inscriptions, which are at least partly corroborated by some ancient literary records written in Pali. Asoka created an altogether new method of establishing peaceful contact. Yet, we must admit that the demand for a sophist made by his father Bindusara

2. For the latest material and views about the identification of these kings, see our *The Earliest Empires of India: The Vandas and the Mauryas* (to be published).

is only the other side of this shield, in a certain sense.

In the beginning of his career, Asoka also sought to apply a different method of increasing the prosperity of his kingdom viz. the usual violent one, when he embarked upon an aggressive war against the kingdom of Kalinga. Being convinced of the futility of the application of this method in the altered context of the then developed state of economy and political and social circumstances, he set his face against any further encroachments on others' territories. As explained by us elsewhere, it was no longer found "necessary to make use of arms, even from the selfish point of view of adding to the wealth of the royal household, of the court, or of the retinue."³ He naturally turned to the more peaceful means of obtaining wealth viz that of trade. As explained in the same place, the ground for Asoka's conversion to Buddhism was already prepared by a number of factors including such material causes as well as the spiritual movements of that time.

The inscriptions left by Asoka the Great reveal an indefatigable spirit at work, a spirit that strove hard for the furtherance of the creed, in which it came to believe. They reveal not merely a personality, but a whole epoch, that had come to stay with the fulfilment of the mission of Kautilya and Asoka's predecessors, that is, with the realization of the politicians' dream of the Chakravarti (or universal monarch) for the whole of India. Not only were the armed clashes between different states to be henceforth eschewed according to this new faith of Asoka, but even other conflicts were to be studiously avoided. An insight into the spirit of these edicts of Asoka is provided by the Rock-Edict XII. that lays an emphasis on "Samavaya" (harmony or concord between different sects or creeds) and "Sara-vridddhi" (development of the very quintessence of these creeds). In other inscriptions, Asoka repeatedly lays stress on five chief means of augmenting the religious merit (Dharmavridddhi) viz, bestowing gifts on or showing due respect to the Brahmanas and Sramanas, showing due courtesy to parents and to elders, showing kindness to the poor, the aged and the orphaned, giving proper treatment to the 'slaves' and the servants (Dasas and Bhatakas), and lastly, non-violence to animals (analamphba). An effort is made to eliminate certain causes of conflicts between various classes including the privileged priestly classes and the down-trodden ones. Like the records of the Egyptian noblemen referred to above, the inscriptions of Asoka give us a glimpse of the moral and ethical ideas of those days, into

what were held to be the highest virtues in those days.

Asokan records also contain certain claims on behalf of their author as to what that ruler achieved in the field of the propagation of his own creed, or in the field of benevolent acts of public utility that he performed; and many of these claims may be supposed to have contained an element of exaggeration. Even so, these records cannot be put on the same footing as the Egyptian noblemen's records. Indeed, the candidness and the sincerity with which Asoka owns his mistakes in these public documents, are altogether unique in all official documents, not only in ancient India, but also in the whole of the ancient world. It is quite patent to anybody who cares to go through both these sets of records, Egyptian and Indian, that the Egyptian records lack the ring of sincerity, found in the edicts of Asoka. Through these edicts, inscribed on rocks and pillars, scattered almost throughout the whole of India, he speaks as it were to his contemporaries as well as to the whole posterity, like a soft-hearted grand-father, in an open-hearted manner, quite foreign to the soul of a mighty victorious emperor. Look, how pithily and graphically he depicts the devastating effects on the populace, of his own victorious conquest of Kalimga. Witness also the firmness that he shows in chastising the "foresters", perpetrating wanton destruction; but while he shows this firmness, he also shows his real concern about their welfare, by addressing them directly that he really does not wish to inflict any punishment on them, and that any punishment, that he would be compelled to inflict if they persisted in their hostility towards peace, would really pain himself. Witness again, how he pleads for a generous understanding of others' faiths: Indeed, he lent the whole weight of his august authority for promoting such an understanding.

True, some later politicians (like Akbar etc.), are known to have done similar things, from this or that ulterior motive. But in their utterances, one misses Asoka's sincerity for the welfare of the whole nation, including the down-trodden; and unlike Asoka, they are never found, chastising or indicting, with all the seriousness of an emperor (that brooks no contradiction, or that cannot be taken lightly), even the highest officials of the state if they are found maltreating their subjects. There is a transparent naivety in the chastisement of Asoka, which shows that it was not merely for popular consumption. There is a similar naivety in his addresses to the people, when he pleads for proper treatment being meted out to "slaves" and to servants, or for gifts to Brahmanas, Sramanas etc. Thus, in Asokan inscriptions, we find him dealing with a number of contemporary problems (social and political) that he

met with, a feature which is altogether unique in ancient Indian inscriptions. We also obtain a glimpse in many aspects of the contemporary society, as to how the servants and "slaves" were badly treated, as to how the highest officials (*Mahamatas*) dealt harshly with their subjects etc.

Before turning to other records, we shall deal with some general aspects—or the absence of such aspects—in Indian epigraphy. Many of these features of the Asokan edicts are conspicuous by their absence in later inscriptions. Similarly, there are a number of other features, that are found in the records of other countries, but are wanting in India. Some such features are, however preserved by some literary records of this country. Thus, laws promulgating severe punishment about petty thefts, adultery etc., are to be found in the *Kautiliya Arthashastra*, the *Manu-smriti* etc., but are hardly mentioned anywhere in Indian inscriptions. Besides this, there is also another aspect of Hammurabi's Code, that is, met with in ancient Indian literature, mentioned above, but is wanting in Indian inscriptions viz fixing of wages or fees of various types of workers—of doctors, farm-labour, brick-layers, masons, carpenters, herdsmen, shepherds, labourers etc. i.e., approximately of the same categories of workers, for whom that Code also lays down the wages or fees. Again, in India, there is practically no record to be found in the ancient period, which can give us any inkling of such discontent of the masses—or even of such an official codification of laws to put down any such discontent, or of any other laws covering matrimonial and other relations.

When examining the merits of our former work, entitled *The Mother Goddess*, certain epigraphists, who ever refuse to countenance any picture that is just "not found" in an epigraph, accused us of depending too much on ancient Indian literary documents. This accusation can also be flung against one, if one seeks to point out symptoms of discontent of the masses in ancient India from purely literary sources. But such a viewpoint totally ignores the fact that the ancient Indian epigraphs by their very nature, cover a very limited field. For the most part, the materials, on topics other than religion or religious matters, are found only incidentally in these inscriptions. As Dr. Fleet points out, in India, "for the great bulk of the epigraphic records that have come down to us, we are indebted, not to any historical instinct of the Hindus, but to the religious side of their character and their desire for making endowments on every possible occasion."⁴ Whenever any

4. I.A. (1900), p. 10; cf. I.G.I. (1900), II, p. 53.

important permanent endowment was made, that appears to have furnished an occasion for engraving the name of the donor. As to other occasions, supplied, for instance, by transactions between chiefs of various states, or those between commercial magnates of distant places, the need of such occasions appears to have been fulfilled in historical times in India, by some perishable material like the birch-barks, on which, rather than on clay tablets, letters alluding to such transactions were written. That letters were generally written thus is clear from incidental allusions in ancient Indian literature, including the *Abhijnana-Sakuntala*, the *Malavik-agnimitra*, the *Malati-Madhava*, the *Kadambari*, The *Mudra Rukshasa*, where we find them written on perishable material such as the *Bhurja-patras*, or even the *nalinī-patras*, irrespective of whether they are written by state officials, or by chieftains, or by lovers.

Dr. J. F. Fleet also points out that even the edicts of Asoka belong in a certain sense to the category of religious documents; and we know that some of them, like his *Nigliva* edict, the edict of his second queen *Kaluvaki*, and the records of his grandson *Dasaratha*, are actually of a donative character. The religious or donative character of most of the later records celebrating either the *danas* (religious endowments) to temples, to stupas, or to Brahmanas etc., or the building of works of public utility e.g., embankments, tanks, wells, sarais etc., or even temples, is altogether too obvious to need any comments. In this context, the following observation of Dr. D. R. Bhandarkar becomes noteworthy: "The most numerous of these, again, are donative charters, issued by kings, feudatory chieftains, provincial governors, or any high officials, who had the authority 'to alienate state lands to assign allotments from the state revenues.' They were, in fact, title-deeds, and passed into custody as soon as they were issued. They were commonly known as *tamra-pattiaka* (copper tablets) or *tamra-sasana* (copper-charters)". The motive of all these donations was none other than that of obtaining religious merit.

Again, what have been characterized as *prasastis* (or poems containing bardic, hymnal praise) like the famous record on the Meherauli Iron Pillar (mentioned above), the rock inscriptions of Ushavadata (son-in-law of Nahapana) and of some Satavahana rulers, etc., belong in reality to the same category, recording as they do the erection of some sacred pillars (— of "Garuda-dhvaja",

5. *Revealing India's Past*, p. 200, see IGI. (1909), II, pp. 28; 35. See also *Raja Taramgiṇi*, I 15 (quoted above, p. 2).

etc.), or donations to the Buddhist *samghas*. This does not prevent these records from containing valuable historical material, given by way of the *prasasti* of the donor. An interesting class of records, advertiring to Brahmanical sacrifices, has recently been found on *Yupa*-pillars, at various places in eastern Rajputana. Though these records do not always contain a direct allusion to donations or dences, it is quite clear that these sacrifices were accompanied by sumptuous gifts to Brahmanas.

These ancient records throw a flood of light on various aspects of religious thoughts current in the ancient world. Often we find in them the then existing rulers or their immeditate ancestors being compared to the heroes, demi-gods, or divinities of the *Ramayana* or the *Mahabharata*, as for instance in the Andhra-Satavahana records, found in the Buddhist caves of the Western Ghats. Sometimes we come across direct allusion to the prevalence of the cults of such "heroes" or divinities, as for instance in the *Hathibada* Stone Pillar inscription found in the Udaipur State, which alludes to *Samkarshana* (or *Balarama*) and *Vasudeva* (or *Krishna*). What is most remarkable about many of such records is the eclectic spirit that they betray. The Andhra-Satavahana records are not the only ones that testify to that spirit, when they refer to the donations bestowed upon the Buddhist mendicants, and compare the rulers etc., to the Brahmanical divinities. The *Nagarjunikonda* inscriptions, which speak of the donations to some Buddhist structures and *samghas*, made by the queens and princesses of the *Ikshvaku* family, eulogize the kings as performers of Brahmanical sacrifices such as *Agnihotra*, *Agnishtoma*, etc. Among both the *Andhras* and the *Ikshvakus*, it is the ladies that were apparently more devoted to the Buddhist religion, whereas the male members were probably somewhat inclined to the Brahmanical religion with its virile heroes. That the Brahmanical religion was not altogether without its attraction for the followers of other ancient Indian creeds is clear not only from ancient Indian literature, but also from those records. And even a Greek ambassador (*Yona duta*) like *Heliodorus* came under the spell of the Indian religion, and like a true *Bhagavata*, he erected, as we know from his own inscription a "Garuda-dhvaja" during the time of *Antialkidas* (c. 120-90 B.C.),⁶ and *Bhagabhadra* or *Bhagavata Sumga* (c. 106-86 B.C.).⁶ Dr. Fleet alludes to the *Hathigumpha* cave inscription of *Kharavela*, a king of *Kalimga*—which appears to summarize his career as far as the

6. These dates have been settled by us in another work, awaiting facilities for publication.

thirteenth year of his reign—as “one of the best instances of purely historical narrative.”⁷ But since this record is hopelessly mutilated, we are quite unable to guess the real purpose of this record. It may well be that like almost all other records of the early centuries of the Christian era and before that, this record may also have been composed to celebrate some pious or religious acts of King Kharavela; at any rate, some of his pious acts have been referred to in that inscription. And it must not be forgotten that under this class, the ancient Indians included even such acts as the “sacrifices of conquests” (such as the Asvamedha, Rajasuya etc.). Among such records may possibly be included the Eran inscription of Samudragupta.

Since, however, there is no definite evidence to the contrary, one may grant the existence of a small number of purely (or almost wholly) historical inscriptions, such as the Allahabad Stone Pillar Inscription of Samudragupta (composed by Harishena), the Mandasor Stone Pillar Inscription of Yasodharman (composed by Vasula) etc. Inscriptions of this class appear to constitute pure “prasastis”, intended to extol the glorious deeds of the reigning king. Nevertheless, there exists the possibility of even these “prasastis” having been written or recorded on the occasion of some religious deed or donation, performed or given by the king in question, or even in some cases, by the poets of these “prasastis”. Indeed, the stone pillars on which they are found emphasize their religious character.

On the other hand, there are also some other monumental pillars and slabs (e.g., the Eran Pillar with the Inscription of Bhanugupta and Goparaja etc.), which contain inscriptions that commemorate the death of the heroes that died in the battle-fields, and/or the consigning of their widows to the funeral pyres of their husbands, as Satis. There are others that commemorate similar events or are erected for the same purpose; but the inscriptions of them contain no allusion to any heroes or Satis, but only some praise of this or that divinity. Such “Sati-stones,” “palias” and “virgals” (hero-stones), are well-known throughout Madhya Bharata (Central India or the Malwa Union), Gujarat, Kathiawar, Madras and other provinces. Sometimes, they may be devoid of any inscription whatever when their character as “Sati-stones” or virgals is determined by the representations on them. Pathetic interest centres round some of these records, that contain some gruesome or tragic details in connection with the

7. IGI. (1900), II, p. 50.

Sati. An example of such an inscription is to be found in Belaturu record, which narrates a "pathetic tale of how, in spite of the remonstrances of her parents and her relatives, the wife of a local governor entered the flames, to accompany her dead husband to the world of the gods."⁸ One is reminded here of another example of Sati, that one comes across in the Harsha-charita of Banabhatta. Here also the lady is said to have consigned herself to the flames of the funeral pyre of the deceased husband, despite the remonstrances of her nearest and dearest. There is another similar tale to be found in the records of the Greek writers, like Arrian etc. According to it, a sort of competition took place between two wives of a deceased Indian warrior, as to which of them was to be the "Sati." Since the elder one was with child, the issue was decided in favour of the younger one. The result was that the lady, who was denied that privilege, felt extremely mortified at what she took to be a calamity. On the other hand, the younger one felt exultant, as if she had won a great victory. And in the presence of the whole army of Alexander the Great, in whose time this incident took place, she laid herself down by the side of her beloved on the funeral pyre, and even "as the fire seized her no sound of weakness escaped her lips."⁹ The merit of the inscription mentioned above lies in the fact that it being an eye-witness account, in an almost contemporary document, undoubtedly handed down to us without the slightest mutilation, we can no more call in question the other accounts about voluntary self-immolation, handed down by those texts—which, though no doubt containing contemporary eye-witness accounts, may still be said to embody mere literary traditions.

As to the light that the Indian records throw on legal matters, we may remark that since these records are mostly religious, such light is only incidental, and further that there are only a few such records. For example, we may refer to certain records from Bengal, belonging to the time of the later Imperial Guptas, which throw a flood of light on the working of the "Pan.chayat-system" in the administration of the affairs of a "vishaya" or district. The chief of a "vishaya" (Vishaya-pati), who is said to be administering justice with the aid of two representatives of the trading class, and two clerks or accountants, is found looking after all sorts of transactions, including the sale of a piece of land, and so forth. This sort of administration of justice is brought out quite vividly

8. IGI. (1900), II, p. 52.
9. CHI., I, p. 415

in some early literary texts like the *Mrichchhakatika* etc. In that play, we find a judge, sitting in the company of a representative of the trading class and an accountant-clerk, and looking after the dispensation of justice. As in Mesopotamia and elsewhere, the king was the fountain-head of all justice, the supreme appellate authority etc. We find in this system, the three main classes, or the three upper castes, controlling the economic life of the Hindu society, represented in the court. In other (literary) texts, mostly religious, we learn as to how a judge *should* dispense with justice, and not as to how he actually *did* it. Only in non-religious texts like the drama mentioned above, do we find a graphic account of a contemporary court; and only in the inscriptions do we get examples of actual transactions enacted in the presence of the *Panchayat* or the contemporary recording of actual justice meted out by the latter.

While these inscriptions allude to the administration of civil matters, there are others, "which give an interesting insight into the administration of criminal law in the twelfth century. One of them recites how a certain individual by mistake shot a man, belonging to his own village, whereupon the governor and the people of the district assembled together and decided that the culprit should not die for the offence committed by him through inadvertance, but should burn a lamp in the Tunandar temple at Siyamangalam; and accordingly he provided sixteen cows, from the milk of which ghee was to be prepared, to be used in burning the lamp."¹⁰ Another inscription alludes to a similar incident, when it "records that a man went hunting, and missed his aim, and shot another man." We are told that on this occasion too, "the people of the district assembled, and decided that the culprit should make over sixteen cows to, apparently, the Tiruvottur temple."¹¹ According to a third inscription, a *Sudra*, while hunting, shot a *Vellala* through mistake, whereupon farmers "from seventy-nine districts" gathered together to decide the case. The decision they arrived at was that the *Sudra* was to expiate for the crime by donating sixty-four cows to a temple.¹²

Such shooting accidents appear to have been frequent enough to be recorded in so many inscriptions. The latter thus throw an unexpected sidelight on similar accidents of an earlier date, that

10. IGL (1909), II, p. 52.

11. *Ibid.*

12. *Government Epigraphist's Report* (1907), Sec. 4-, p. 77. Such accidents were numerous; see *Government Epigraphist's Report* (1910), Sec. 30, p. 95, where we come across "mistakes" of a similar nature in hunting.

took place with reference to the *Vana-prasthas*, *Munis* or *Rishis*, that dwelt in the forests, and that were often mistaken for the deer, etc. Such accidents occurred in all probability in such large numbers that they, aided by the poignancy of Fate attached to them, became a constant theme with the poets of the epics and other works,^{12a} although no early inscriptions are found to mention them.

From another mutilated inscription we learn that a husband was responsible for a serious fall and subsequent death of his wife. An assembly of fifteen hundred men came to the decision that the guilty husband should provide for lamps in some temple.¹³ In some of these important cases, we come across administrative head or heads co-opting large groups of people in the administration of justice, or else some guilds or corporate bodies administering it independently. In South India, these corporate bodies are often referred to as the "great men" (*maha-janas*) of the villages, and they are to be distinguished from the commoners of the villages, as they consisted mostly of the upper class folks. *Brahmana* or non-*Brahmana*, young or old.

What happened elsewhere with regard to similar donations, land-grants etc., happened in India also. Thus, as in Mesopotamia, we find that the royal power was not always strong enough to ensure the protection of these land-grants etc. In the early historical period of India, no such land-grants are known to have been recorded in any charters (*susanas* etc.), though such grants have been incidentally referred to in a few cave-inscriptions. The earliest records in charters often do not contain any imprecatory or benedictory verses; but gradually before the end of the Gupta period (which we put in c. 550 A.D.),¹⁴ such verses come into existence. And they gradually grow in numbers, reflecting the general unsteady character of the society. In the tenth, eleventh and twelfth centuries, a number of inscriptions have more than fifteen or twenty such imprecatory and benedictory verses at the end. Excepting for certain short periods, never did the days subsequent to the end of the reign of Harsha, witness the existence of one mighty empire, covering a major portion of India, until the

12a. See *Mbh.* (BORI, ed.), III. 182, 3f.; III. 205, 11f.; etc. cf. *Ramayana* (NS, ed.) II. 63, 23f.; etc. *Raghu-vamsa* (NS, ed.) IX. 73f.; etc. Also compare *Mbh.* (BORI, ed.), I. 90, 64f.; I. 109, 5f.; etc.

13. *Government Epigraphist's Report* (1907), p. 77

14. This date is given from our latest research work on the Imperial Guptas, that we hope to publish like many other works, completed long ago by us some time in future, when financial aid would be forthcoming.

Muslim invasion; but, on the other hand, they witnessed the rise and fall of numerous states, small as well as great, both in the Northern India and in the South. The vicissitudes of fortunes, through which the numerous kingdoms passed during c. 650 to 1200 A.D. can be studied from no other source, as from the copper plate inscriptions recording donations of land etc., bestowed by the kings and their dependents. We can observe how the boundaries of these states always shifted; and there was ever that uncertainty as to the property of all sorts, including land-grants, which arises out of a constant change in the administrative staff. Hence, greater and greater need was felt for invoking divine aid. Situation in this respect deteriorated to this extent that in a number of land-grants of the Yadava, Silahara, and other dynasties in the Deccan, mere imprecatory verses were not deemed enough; and we find these inscriptions rounded up with some of the most obscene phrases and sentences, that are current in the vulgar tongue of those districts even today. Nay, often in these inscriptions, we come across actual representations of the meaning of those obscene imprecatory sentences!

An important aspect of the basic nature of the ancient Indian administration, that is observable to any keen student of ancient Indian inscriptions, is brought out clearly in the following by Prof. E. Rapson: "The inscriptions supply most valuable evidence as to the political, social, and economic conditions of the period and the country to which they belong. They testify, on the one hand, to the restless activity of a military caste, and, on the other, to the stability of institutions, which were, as a rule, unaffected by military conquest. One conqueror follows another, but the administration of each individual state remains unchanged either under the same prince or under some other member of his family, and the charters of monasteries are renewed as a matter of course by each new overlord."¹⁵

There is also another aspect, pertaining to the body politic of ancient India, that becomes clear to the student of Indian epigraphy. We find that the new ruling dynasties do not come into being all of a sudden and out of nothing, but that it is almost always ascertainable that the predecessors of the new dynasty served under the former ruling dynasty. Further, that it is the vassal dynasties that are often found overthrowing their former masters and usurping their sovereign seats.

Certain inscriptions from the Deccan States (from Kolhapur).

15. CHI., I, p. 61.

Miraj etc.), belonging to the eleventh and twelfth century A.D., supply us with a good many details about the dues of all sorts of objects or gifts etc. that were given by the trading corporations of these localities, to some divinities or priests, for the building, maintenance or repairs of some temples.⁶ There are similar epigraphs from Thana and other districts of Konkan, as well as from a number of localities in Tamil Nad. There are others from Konkan, that speak of certain merchants and their progeny having been exempted from certain taxes (such as tolls or customs duties). A careful investigation of all these epigraphs about trading communities, scattered throughout all these provinces, would reveal a number of interesting facts about their history. Not the least interesting of these facts appears to be this that certain communities like the Jains, the Chettiars etc., have retained their traditional vocations, and have been rich from very ancient times. Speaking in terms of communities or classes, therefore, it is legitimate to aver that Lakshmi (the Goddess of Wealth) is not altogether so fickle or ephemeral, as she has been made out by the Indian poets!⁷ In this context, we may also refer to the fact that quite a host of later inscriptions supply us with very many interesting details about the original habitat, the Gotras, the Pravaras, the Sakhas etc., of the different sects of the Brahmanas. A study of these details, with special reference to their present-day location, would provide an interesting theme for a voluminous and interesting work.

Inscriptions help the reconstruction, not only of social, political, administrative and religious history, but also of the history of Sanskrit and Prakrit literature, in a number of ways. Thus, an inscription like the one at Aihole (or Ayyavole) may finally settle the lower limits of the dates of Kalidasa and Bharavi, by specifically mentioning these poets. Or it may shed an invaluable light on the development of the style or of the language of a period. Or it may contain quotations from this or that Smriti text or Purana and may thus help to determine the date of that text. Or it may indirectly help by fixing up the exact chronology of the royal patrons of various well-known poets such as those of Bana, Trivikrama-deva (the author of the Nalachampu), Hemachandra, Soddhala etc. We must not also forget that often considerable light is thrown by borrowings of well-known ideas and words of well-known poets; and that the cumulative effects of such borrowings become undeniable, despite dogmatic belief or indifference of this or that writer, or even belittling of such evidence by

any "level-headed" critic. Indeed, a number of controversies about the dates of various poets and their works, and about the development of Sanskrit literature have been already (and will, in future, continue to be) set at rest by a deep study of Indian epigraphy. As pointed out by no less an authority than Dr. G. Bühler, "On the one hand, we owe to it particular and very important data which definitely fix the time of prominent authors, as for instance, recently the time of the dramatic poet Rajasekhara, whose pupils and patrons, the kings Mahendrapala and Mahipala, ruled during the last decade of the ninth century and in the beginning of the tenth century of our era, as shown by Mr. Fleet and Prof. Kielhorn. On the other hand, the comparison of the partly insignificant notices in the inscriptions of the present day, permits us to have an occasional peep, in the development of all the types of literature and of all the religious systems, a peep whose worth is considerably significant in the absence of really historical detail."¹⁶ Thus, to cite just one example, the controversy about the authenticity of the poetic work known as *Ritusamhara*, traditionally attributed to Kalidasa, has been finally settled by the evidence as to its early date, brought forth by Prof. Kielhorn, Dr. Bühler and the present writer, who have shown many of its passages as being borrowed upon by the authors of certain early inscriptions in Malwa.¹⁷ Further, Prof. Kielhorn has shown that the writers, who composed the inscriptions of the Rashtrakutas, were greatly indebted to the authors of the *Vasavadatta* and the *Kadambari*.¹⁸ It is possible to show that the composers of the land-grants of the Maitrakas of Valabhi were also similarly indebted to the same authors.

Further, quite a number of beautiful poems in Sanskrit, Prakrit, Tamil and other languages have come to light in epigraphical studies. In addition, independent literary compositions such as dramas etc., have also been brought to light by this branch of Indology. Dr. J. F. Fleet has summed up all the information about this point in the following words, about 40 years ago: "From stones at Ajmer we have fragments of two otherwise unknown plays. One of these plays, entitled *Lalita-vigraha-raja-nataka*, was composed by a poet Somadeva in honour of the Chahamana king Vigraharaja. The other, entitled *Harakeli-nataka*, was composed

¹⁶ Dr. G. Buhler, *Indian Inscriptions and the Antiquity of Indian Artificial Poetry*. (Edited by D. B. Dikshalkar), p. 1.

¹⁷ Ibid., p. 18; "Sahyadri" (A Marathi Magazine) (1938).

¹⁸ Ep. Ind., VI, p. 242

by Vigraharaja himself.... From a stone at Dhar, in Central India, we have the first two acts of an otherwise unknown play by Madana, entitled *Parijata-mamjari* or *Vijayasri*, of which the hero is the Paramara king Arjunavarman.... And from other stones at Dhar we have two Prakrit poems, odes to the tortoise incarnation of Vishnu, written in honour of King Bhoja."¹⁹

We have witnessed elsewhere the process by which neighbouring villages of Mesopotamia and elsewhere grew into towns and cities, and also how the heads and the members of the villages or village organizations joined hands. The same process must have been repeated in all countries, and it appears to have continued in India even as late as the tenth century A.D. according to epigraphical evidence. Thus, according to an inscription of the time of Parantaka I, members of the assemblies of two villages, Kanchivayil and Udaya-chandra-mangalam amalgamated their assemblies into one to prosper thenceforth as one village.²⁰ Another inscriptional curiosity that may be noted here is that "a Ratta inscription informs us that Rudrabhatta, the founder of the Banahatti house, had raised a loan of 100 gold coins on the security of a letter of his name. He had agreed to call himself Rudrata and not Rudrabhatta, as long as the debi was not paid."²¹ The name "Rudrabhatta" contains an allusion to the learning of that person, while "Rudrata" contains a diminutive element, expressive of contempt. Those, then, were the days when even the name of a scholar was literally valued!

"In short, there is scarcely any conceivable topic of public or private interest, which is not represented"²² in the early (i.e., pre-Muslim) inscriptions of India.

19. IGI. (1909), II, p. 50.

20. Ep. Ind., III, p. 144.

21. Dr. A. S. Altekar, *The Rashtrakutas and Their Times*, (1934), p. 347.

22. CHI., I, p. 61.

PART II:
STONE AGE

CHAPTER VI

"AGES" IN ARCHAEOLOGY : A DEFINITION

ARCHAEOLOGY, as we have seen in a previous chapter, concerns itself with the material relics that the ancient man has left behind,—that is, with the products of the activities of the ancient man. For all such activities, on which archaeology seeks to throw light, man has always used some implement or the other. In different periods of human history, man is actually found using different types of implements, which, in a way, characterize those periods. It is, therefore, quite appropriate to seek to divide the history of human activities in general, in accordance with the nature or characteristics of the implements used by man. Thus it is common as well as natural to speak of the Stone Age, the Bronze Age, and the Iron Age, according to the nature of the implements, that mankind used for "production", i.e., for the creation of "wealth", or for the acquisition of "surpluses" or of "property".

Scholars have pointed out that this classification is already anticipated by Lucretius in his poem "De Rerum Natura", in a passage that is translated by Mr. H. A. J. Munro as follows: "Arms of old were hands, nails and teeth, and stone, and boughs broken off from the forests, and flames and fire, as soon as they had become known. Afterwards the force of iron and copper was discovered, and the use of copper was known before that of iron, as its nature is easier to work and it is found in greater quantity."¹ (V. 1283-1288). The idea of these three ages appears to have been first given as a basis for the history of human civilization by Mr. Vedel-Simonsen in the second decade of the last century: "The weapons and implements of the earliest inhabitants of Scandinavia were at first of stone and wood. These folk later learnt the use of copper.... and only latterly, it would appear, iron. Therefore, from this point of view, the history of their civilization can be divided into an age of stone, an age of copper and an age of iron."²

1. Lucretius, *On the Nature of Things*. (Bohn's Classical Library, 1908), p. 214. Calverton, *The Making of Man*, p. 41.

2 Daniel, p. 40. From Marcelin Boule, we learn: "In 1750, Eccard, after investigating old German burials, established a succession of different prehistoric ages; and in 1758, a learned magistrate, Goguet, published a remarkable work on the "Origin of Laws", in which he declared that a Stone Age had been

The initial application of this idea to the classification of the implements left by the pre-historic man was the work of Christian Thomsen, who classified the antiquities in the National Museum at Copenhagen according to the ages of Stone, Bronze and Iron.

It must, however, be pointed out that Vedel-Simonsen's views about the exact demarcations of the ages were not very clear; for he adds: "These ages were not separated from each other by such exact limits that they did not overlap each other."³ He correctly points out, in the end, that "without doubt the poor continued to use implements of stone after the introduction of copper implements, and copper implements, after the introduction of those of iron."⁴ It is this commonly observed fact that has led to a common confusion about the meaning of "ages", as conceived in the science of archaeology. This confusion has further led to a number of confounding observations, and especially to the lack of understanding about the significance of the various ages in human history. In view of this, it is first of all necessary to have something like a definition of the "ages" in archaeology.

When we speak of humanity as a whole and refer to the coming of any age, or to the existence thereof, we mean that at least one section of humanity had reached the stage in which the material with which that age be associated, had come in vogue, and that this itself represented a high water mark of contemporary civilization, for the mankind as a whole. When, on the other hand, we speak of any particular tribe, people or nation as having come or not come to any particular age, or as being still in that age we clearly do not allude to the humanity at large being still in that particular age. Thus, with the recent scientific achievement relating to the splitting up of the atom, in only one country, that of America,⁵ we may

followed by an Age of Copper and of Bronze, and then by an Iron Age. Later this classification was firmly established and developed by the Danish archaeologists Thomsen and Worsaae." (Calverton, *The Making of Man*, p. 43).

3. Daniel, p. 40. It is correct to state that "these ages were not separated from each other" by any length of time; for as soon as one age commenced, the previous age ended in accordance with the scientific definition of an age. It is also correct to state that the cultures, characteristic of two different ages, are found to co-exist, or to 'overlap'. This may be true even of three or more ages. Yet we must differentiate between the succeeding and preceding ages.

4. Ibid.

5. Later both Molotov and A. Y. Vyshinsky have declared that the U.S.S.R. also possesses the Atom Bomb; but we shall ignore this for the present. (This was written in 1948. Things have radically changed since those days and even the highest spokesmen of the U.S.A. have acknowledged that the U.S.S.R. undoubtedly possesses the atomic bomb. And now in 1952, we find even the U.K. in possession of an atomic bomb. The completion of this work of ours and its printing took such a long time! Science develops faster than Culture).

in one sense say that the Atomic Age has begun; but at the same time it is true that some tribes in Australia are still in the Stone Age. Correctly speaking, however, we are yet only on the verge of the Atomic Age, and it has to be admitted that the Atomic Age has not yet begun; for the atomic energy has not yet been utilized anywhere in the world as a means of social production, i.e., for the creation of social wealth. *It is only after a scientific invention has been applied in a productive capacity in a social sense that that invention can be considered as having ushered in a new era.*

While the foregoing remarks may be best illustrated when we come to the beginning of the Iron Age, here arises also the question as to why such an application of a scientific invention should constitute the beginning of a new era. The answer is that, *indeed, it is only in a social sense that a new invention affects the manner of living in a society, affects the structure of that society, introduces a new era, and ultimately proves to be the most important contribution of that era.* It introduces totally new factors in the life of men, especially in their relations with one another. Once such social application of a scientific invention is effected, and such new factors introduced, howsoever small this force may in the beginning appear to be, it is potentially the most important factor, so that a new age may well be said to begin with it. Under such circumstances it is not actually the then existing factors but rather the new ones, that count in the long run—even though the former may in the beginning appear to be dominant. It is not the then dominating and fully-developed (and, therefore, decaying) economy, but the new one—the more advanced form of it, introduced by the new invention—that matters more in the final analysis of history. It is the more advanced and the more scientific social force that ultimately wins, despite the apparent victories of the less advanced and the less scientific social force in the initial stages of their conflict. In the field of pre-historic archaeology, we witness this phenomenon, most clearly, at the beginning of the Iron Age, in the turbulent conflicts between the initiators of that age, and the powerful despots of the Bronze Age, who despite their far-flung empires, had ultimately to bow down before the warriors of the Iron Age.

The foregoing discussion would make it clear that the chief characteristics that mark the commencement of a new age are the invention of a new and improved implement of a more advanced type, and the use of such an implement for the production of social wealth. It is not enough for an implement to be merely new or different from the older ones; the “improvement” in the implement

must not merely be of form or shape, which in reality is immaterial. It must be a radical improvement in the very nature of the implement itself, resulting in a definite improvement in technique, affecting the production or acquisition of social "wealth" or "surpluses". Again, it is not sufficient that a new type of implement, capable of greater production, is merely invented; but it is necessary that it must come into contact with different human beings through the wealth it produces, that is, it must enter into some relation with the social life of man. For this purpose, it is always necessary for this new implement itself to be produced on a mass scale, without which it cannot begin replacing the older one, or affecting the social relationship between a man and a man. It follows from this that once a radically improved implement is produced on a mass scale, and utilized as a means of production of social wealth, that is, for commodity production, it at once becomes a force in the social economy, and begins to effect the changes due to it in the structure of the social relationship of mankind, it moulds that relationship according to its own needs. It does not depend upon that relationship, which it subordinates, and which, therefore, cannot check its growth, but must only allow it. Thus, once the new implement has become a force in the social economy, there is not only no "going back", but the new age must be considered definitely to start from this point.

Archaeologists of Crete, Mesopotamia, India, and many other countries are found to use such terms as "eneolithic age", "subneolithic age", "chalcolithic age", etc., without any reference to the fact that in those periods, which they regard, at least etymologically, as being portions of the neolithic age, copper and bronze implements are found to be already in vogue. Furthermore, such a use of terms without any logical basis or without even clearly defining the terms used (and used un-warrantedly) is likely to add to confusion that is often found to prevail in the field of pre-historic archaeology. Since this point has been further clarified by us in some of the subsequent pages, it is sufficient to note here that a greater exactitude in terminology would compel the use of such terms as the "Copper Age", the "Bronze Age" etc., in the place of such widely prevalent but erroneous terms as the "eneolithic age", the "chalcolithic age", etc.

There is another line of confusion, that is observable in the study of the pre-historic archaeology, and that can best be witnessed in the following confounding observations of Dr. Glyn E. Daniel:—"...cultures, which were formally Neolithic and those

that were formally Bronze Age or Mesolithic appeared to coexist in small areas of Europe, and the transition lines between these three ages were blurred geographically and chronologically. Perhaps the most disturbing idea in the new prehistory was the thought that in northern and north-western Europe the Neolithic cultures might be, in fact, impoverished versions of the Bronze Age cultures in the Mediterranean and Near East. This was argued cogently by Peake, Fleure and Forde in relation to the collective tombs of Iberia and is now a commonplace of current archaeological thought. It meant that the word Neolithic was used for several stages of culture; that it was in fact a relative term, and not an absolute stage in the development of all kinds of men.

This lesson from European prehistory was also learnt when the prehistoric sequence outside Europe was squeezed into the development of the three-age framework. There can be no doubt that the new pre-history realised the terms Palaeolithic, Mesolithic, Neolithic and so forth were ambiguous; to say the least of it, they were used as denoting either chronological divisions or cultural stages.⁶ Now, while there is some justification for the criticism implied in these observations, it must not mislead us into thinking that the very basis of the age-wise division of prehistory is unreal or unsubstantial, or that this division is either arbitrary or futile from the point of view of scientific accuracy. Nothing, indeed, would be farther from truth. As explained at the beginning of this discussion, a culture, that may typologically belong to the Neolithic Age, may be found alongside with another that may be legitimately assigned to the Bronze Age; or it may be found flourishing in one locality, when in another Bronze Age or even Iron Age implements were already being manufactured; or it may be found developing under the influence of such implements of another locality. Such a culture, though termed "neolithic", cannot be considered as belonging to the "Neolithic Age", in the study of the prehistory of mankind, but must be considered as belonging to that later age and as being a relic of the "Neolithic Age" surviving in that age. Chronology, fixed either sequence-wise, or in accordance with absolute dates, taken in relation to distinct geographical areas, would be the best means of getting over the riddles, presented by facts, detailed in Dr. Daniel's observations.

6. Daniel, p. 249. What is disturbing in the idea that the so-called Neolithic Cultures of Northern or North-western Europe are now adjudged as the products of the Copper Age or Bronze Age? How do the terms "Palaeolithic", "Neolithic" etc., become ambiguous on that account?

In the end, we may quote the following remarks of Prof. V. Gordon Childe, which bring out lucidly, though briefly, the function of archaeology and the significance of the "ages" in archaeology:

"It is archaeology that studies this process in culture. Its documents are the tools, weapons and huts that men of the past made in order to secure food and shelter. They illustrate improving technical skill, accumulating knowledge, advancing organization for securing a livelihood. Obviously a finished tool, fashioned by human hands, is a good gauge of the manual dexterity of its maker. Rather less obviously is it the measure of the scientific knowledge of his period.....But when the tools (etc.)are considered not in isolation but in their totality, they may reveal.... also the manner in which their makers got their livelihood, their economy.... The archaeologists ages correspond roughly to economic stages. Each new "age" is ushered in by an economic revolution of the same kind and having the same effect as the "Industrial Revolution" of the eighteenth century."⁷ Though the exact century in which the latter revolution was ushered in may have to be rectified in the light of the definition of an "age" and the discussion thereupon given above, Prof. Childe is correct in making it amply clear that the archaeologist's ages are concerned with changes in the types of the implements used by man, resulting in changes in social economy and, therefore, in social structure.

CHAPTER VII

PALAEOLITHIC AGE

Stone Age

The earliest weapons used by man were the stone and the stick: They were his chief means of procuring food, the earliest implements left by him behind. These weapons are, indeed, known to have been used by some anthropoids for the purpose of self-defence. But man was the first to utilize them for the purpose of attacking other animals, and for procuring his food, by killing them. Again, the credit of shaping the stones belongs to no other primate than man; and even his earliest weapons were not mere natural stones, but they were fashioned by him, as was never done by any other primate. Similarly, he not merely used the stick as his weapon, he even fashioned it according to his needs. Nay, he was the only primate, to make fire; and he even learnt to make use of it as a weapon. Even the earliest or the most primitive type of man was thus distinguished from other primates by quite a number of distinctive characteristics.

Of all these weapons, it is natural to expect the survival only of the stone weapons; but almost since the earliest history of man, the use of fire has been established, by dint of scientific excavations. The earliest of these stone weapons were naturally the crudest ones, and it was only gradually—very gradually, one would think—that man improved them: He had to improve these quite a number of times, before he was finally able to supplant these with those of the earliest metal he found viz. copper. According to the nature of the chief implement of the Stone Age, the latter has been subdivided into: eolithic (*eos=dawn, lithos=stone*), palaeolithic (*old stone*), mesolithic (*middle stone*), and neolithic (*new stone*) ages. In every succeeding age, or its subdivision, humanity became acquainted with a greater variety of implements, a higher technique of polishing and finishing them. And this in its turn enabled the man to acquire, gradually though, an ever-increasing amount of “wealth”, in the form of surplus food etc. Here we shall let the Tables No. 1 and 2 speak as far as they can.

Eoliths and their makers

The earliest implements, fashioned by man, known as the

TABLE I:—THE ORIGIN OF THE HOMINID

Geological Ages		Primitive Life
QUARTERNARY or NEOZOIC	Holocene (= Recent) Pleistocene	<i>Homo sapiens.</i>
TERTIARY or CAINOZOIC	Pliocene Miocene Oligocene Eocene	? Pithecanthropus of Trinil, Java. Hespero-pithecus (manlike ape) of Nebraska. Manlike ape of Bechuanaland. Sivapithecus, Palaeopithecus etc. (anthropoid apes of the Siwaliks, resembling the Chimpanzees). Pliopithecus of Sansan. Dryopithecus of Haute Garonne.
SECONDARY or MESOZOIC	Danian (Cretaceous) Jurassic Triassic	Pro-pliopithecus of Egypt (is a sort of extinct gibbon): proving the origin of the anthropoids in this epoch. Dawn of recent fauna: Great mammals. Leaf-bearing trees.
PRIMARY or PALAEozoic	Permian Devonian Silurian Ordovician Cambrian	Vertebrates: fishes, frogs, reptiles and small mammals: Dinosaurs, Plesiosaurs etc. Pines. Protists or Radiolaria (single-celled creatures), developing into invertebrates: molluscs, shell-fishes, worms, sea wood-lice etc.; then into reptiles like Pelycosaurs etc., and into sea- scorpions etc. Algae (simplest plant-life), developing into sea-weeds, ferns etc.
AZOIC	Archaeans	Lifeless.

TABLE II:—STONE AGE

	Periods	Hominids	Fauna
NEOLITHIC			
(a) Carnacian : Carnac.			
(b) Robenhausenian: Robenhausen, Zurich. „			
Chassean : Camp de Chassay.			
MESOLITHIC			
(a) Campignian : Campigny, near Boullancourt-en-Sery (Seine-Inferieure);			
(b) Maglemosean: Maglemose, Denmark.			
(c) Azilian : Mas d'Azil, in the foot-hills of the Pyrenees (South France); „			
Tardenoisian : Fere en Tardenois (Aisne) :			
(d) Arisian.			
Tourassian : La Tourasse, near St. Martory (Haute-Garonne).			
PALAEOLITHIC			
Upper Palaeolithic: —			
(a) Magdalenian: La Madeleine, near Eyzies (Dordogne, France).			
(b) Solutrean: Solutre, near Macon (Saone-et-Loire).			
(c) Gravettian:			
(d) Aurignacian in the Pyrenees	Aurignacian man (or 'Man of Cro-magnon').		
(e) Capsian: Gafsa in Tunis.	Gimaldi (Grottes des Enfants, or Mentone Caves)		
Middle Palaeolithic: —(a) Mousterian.	Homo primigenius (or the Neanderthal man)		
Le Moustier, near Eyzies (Dordogne).			
Lower Palaeolithic: —			
(a-c) Micoquean: La Micoque.			
Levalloisian: Levallois.			
Clactonian: Clacton.			
(d) Acheulian: St. Acheul, near Amiens (Somme)	Sinanthropus (or Pithecanthropus) Pekinensis, (or the Peking man). ? Also Taubach teeth.		
(e) Chellean: Chelles-on-Maine (Somme)	Eoanthropus Dawsoni (or the Piltdown man).		
Pre-Chellean: —			
(a) Strepyan.	Homo Hidelbergensis (with the famous "Mauer jaw"), also called Palaeoanthropus.		
EOLITHIC			
(a) Mesvinian: Mesvin	El. antiquus; Rh. etruscus;		
(b) Mafflin. Maffle	Urus arvernensis; U. deningeri; Equus stenonis.		
(c) Reutelian (Prestian).	? Pithecanthropus Erectus (or the Java man).		

eoliths, are, indeed, so very rude that doubts about their genuineness were naturally entertained for a long time by a number of high authorities. These doubts were augmented by the fact that such rude shapes could at times be given by natural agencies. The credit of first recognizing the genuineness of the prehistoric stone artifacts and of attributing them to human agency and to antediluvian period, belongs to a Belgian scholar, Schmerling, who published in 1833 his *Recherches sur les ossements fossiles des cavernes de la province de Liege*. In this, he sought to prove the co-existence of man with the rhinoceros, the cave-bear, the hyaena etc. He also observed: "Everything considered, it must be admitted that these flints have been cut by the hand of Man, and that they may have been used to make arrows or knives....Even if we had not found human bones in circumstances strongly supporting the assumption that they belonged to the antediluvian period, proof would have been furnished by the worked bones and the shaped flints."¹

We may, *en passant*, also allude here to the well-known and oft-repeated story of the discovery of some of these implements in the undisturbed gravel of the Somme valley, near Abbeville in France, by Boucher de Perthes, over a century ago, and to how this and other French scholars found it difficult to convince the learned world of those days, especially in the teeth of the opposition of the British scholars, about the genuineness of the "antediluvian" artifacts. The British scholars mainly followed the views that Prof. William Buckland, one-time Dean of Westminster Abbey, expressed in his *Reliquae Diluvianae*, wherein he produced "scientific arguments" in favour of a universal deluge (1823). It was only after some eminent representatives of the British school of geologists and archaeologists visited the Somme valley, and were faced with direct evidence themselves that they became converted to the views of their opponents. "In addition to being perfectly satisfied with the evidence adduced as to the nature of the discoveries, they had the crowning satisfaction of seeing one of the worked flints still *in situ* in its undisturbed matrix of gravel at a depth of 17 feet from the original surface of the ground."² This visit marked the defeat of the "diluvianists" in England, though some opposition still continued in high quarters in France itself.

Be that as it may, genuine eoliths are supposed to have been found also in the Cromer bed (Norfolk) around Kent, and in some

1. Quoted in Calverton's *The Making of Man*, p. 46.

2. E. Clodd, *Primitive Man*, p. 38.

other eastern counties of England, in Belgium, in Portugal, around Gafsa in southern Tunisia, in Algeria, in Burma etc. The Algerian finds belong to the quaternary epoch, whereas those of Burma were found in the Lower Pliocene deposits of Yenang Yung. Mr. J. Reid Moir made an important find of eoliths "beneath the Suffolk Crag (Newbourn) at Ipswich resting on the underlying London Clay",³ and these are supposed to belong to the Pliocene and Pleistocene epochs. In England, Mr. Benjamin Harrison, a grocer of Ightham in Kent, was one of the earliest to claim human origin for the eoliths, examples of which he found in the gravels of Kent. And though his conclusions were flouted by such eminent authorities as Sir John Evans etc., other scholars have accepted their genuineness and have assigned them to the Pleistocene epoch.

M. l'Abbe Bourgeois claimed human origin for certain implements found by him in the Tertiary gravels at Thenay, near Tours, France. He also discovered what he believed to be genuine eoliths at Saint-Prest near Chartres (Eure-et-Loire, France), also in Tertiary gravels, in association with the relics of *Elephas meridionalis*. The Thenay finds belonged to the Oligocene stratum, while the "Prestian" belonged to the Pliocene stratum. Prof. Verworn, who studied the former group, refuses to accept their genuineness, while Prof. G. de Mortillet, who studied the latter, finds no conclusive proof of the human origin of the latter.⁴ Prof. Rutot also claimed for certain Belgian eoliths human workmanship, and dated them as from the Middle Oligocene to the Pliocene age. But his inferences appear to have been rendered doubtful by a characteristic boldness of conjecture, which is also witnessed when he gives a long list of Belgian caves that have, in his opinion, yielded palaeolithic pottery.⁵ Thus, while the genuineness of these finds may be accepted, they need not be supposed to belong to a date prior to the Pliocene epoch. Certain "worked" flints, found in the Upper Miocene deposits at Otta in the Tagus valley in Portugal, and at Puy Courny in Cantal, France, are attributed to human workmanship by some earlier writers and to natural agencies by others, the latter including such authorities as Dr. Reinhardt, Prof. Macalister⁶ etc. The flint "implements", found at Belle-Assize, Clermont, were at one time recognized as genuine eoliths, and attributed by some

3. Duckworth, *Prehistoric Man*, p. 106.

4. Macalister, pp. 150f., 156f., 163 etc.

5. *Ibid.*, p. 403.

6. *Ibid.*, p. 174; cf. p. 161 where, however, Prof. Macalister accepts them to be "more genuine artifacts than most of the chips that have been labelled 'eoliths'."

scholars to the Eocene period, but they are now reckoned to be due to natural agencies.

To the Pliocene epoch may, however, be attributed certain genuine flint implements, derived from the Somme valley, the scene of the pioneer work of Boucher de Perthes and also that of the systematic excavations of Prof. V. Commont. The latter found here, especially at St. Acheul, Abbeville, Montieres, and other places, a series of industries, including pre-Chellean, Chellean, Acheulian etc. The implements, similar to those found in the lowest layers of human habitation at St. Acheul, have been met with in the pre-Chellean strata at Mesvin, Strepy, and other places. The discoverer of these Belgian implements, M. Rutot, observed that "there is no difference at all, either essential or of an inferior order, between eoliths and what are usually called chipped flints."⁷ On the other hand, Prof. Reinhardt opines that the Reutelian implements were "chipped exclusively from flints weathered from the chalk cliffs; and that having regard to the as yet very slightly developed technique of flint chipping, only such nodules were chosen as could be used with but little modification."⁸ This difference of opinion has led Prof. R. A. S. Macalister to remark: "If Eolithists themselves are thus nebulous about eoliths, how can they expect these objects to be taken seriously? How can we argue about specimens that do not present a form which their describers can agree in defining?"⁹

While this may be taken as a warning against a hurried acceptance of a number of so-called "eoliths" such as those of the Eocene, Oligocene, and Miocene epochs, it would not be desirable to reject all the eoliths only on the plea that their describers do not agree among themselves about their correct description. Indeed, it is quite legitimate to conclude that some Pliocene artifacts are genuine, and that it was the Pithecanthropus erectus or some such species, that fashioned these earliest implements, called the "eoliths." At any rate, there is no doubt about the existence of certain pre-Chellean implements, attributable to the beginning of the Pleistocene epoch, if not the end of the Pliocene age. It is also possible though not quite probable, that the Sivapithecus and other "man-apes" were the originators of the eoliths of the Miocene epoch. But it is extremely doubtful if the Oligocene flints were the work of a proto-human hand. "Professor Sollas is of the opi-

7. Ibid., p. 189.

8. Ibid., p. 187 f.

9. Ibid., pp. 191-102.

nion that any precursor of man of that age, such as pro-pliopithecus, the highest known ape of that age, would not be capable of their manufacture."¹⁰ "Man", in the sense of an "implement-making animal", may thus be supposed to belong to the Pliocene epoch, and even, perhaps, to the Miocene epoch, whereas his existence in the Oligocene epoch may be deemed very doubtful. Such a conclusion would be quite in conformity with that arrived at chiefly by a study of the anthropometric characteristics of the proto-human beings: "Having regard to the general development of the larger mammals, Pliocene Man might be accepted, but 'Oligocene' Man is considered incredible."¹¹

Pithecanthropus erectus (Java Man)

According to Dr. Dubois, a Dutch scholar, "many descendants of the Indian Pliocene (and earlier) mammalian fauna, especially such species as were adapted to a hot climate, must, at the time of the first glaciation of Northern India, have migrated to the more equatorial Indo-Malay sub-region," where he expected to find the "lost types of the anthropoid Primates",¹² belonging to the Pleistocene epoch. In his search for such missing links, he was rewarded by the discovery, in 1891-1892, of the remains of an "ape-man" in the fossiliferous deposits in the valley of the Bangawan river at Trinil, Java. These remains included "the upper part of a skull, part of a lower jaw (which has never been described), three teeth, and a left thigh-bone."¹³ The measurements of the skull would show that it was nearer to the man than to the ape. Thus, the ratio of the brain-weight and the body-weight in the case of this savage man, 1 94, may be compared to the similar ratios in the case of the Orang-utan, 1 183, and the *Homo sapiens* (or the Modern Man), 1 51. One is, therefore, disposed to agree with the conclusion that Prof. Elliot Smith arrived at viz. that "Pithecanthropus is really a member, if a very lowly one, of the human family."¹⁴ As to the deposits wherein the remains of the Pithecanthropus were found, modern scholarship tends to attribute them to the early Pleistocene epoch rather than to the late Pliocene epoch, as was done by Dr. Dubois and others.

10. Fallaize, p. 40

11. Duckworth, *Prehistoric Man*, p. 108

12. Elliot Smith, *The Search for Man's Ancestors* (1931), p. 15

13. Duckworth, 1c., p. 2

14. *Proceeding of the British Academy* (1917) VII, p. 9

Homo heidelbergensis

In 1907, a big massive jaw was discovered in the early Pleistocene deposits of a sandpit at Mauer near Heidelberg. Its possessor, the *Homo heidelbergensis*, had typically human teeth, and probably a very big body and large hands and no chin. It is held improbable that this being could use his tongue with any clarity in his utterances. His jaw is more akin to that of the Neanderthal man than either to that of the chimpanzee or to that of the modern man. He is, therefore, held to have been in direct ancestral line to the *Homo neanderthalensis*.

"In addition to the jaw of *Homo heidelbergensis*, a rich mammalian fauna has been recovered from the Mauer Sands, characterised by....*Elephas antiquus* and *trogontherii*, *Equus mosbachensis*, *Dicerorhinus etruscus*, *Hippopotamus major*, . . . *Machaerodus* sp. This fauna. . . is characteristic of the time just preceding the Antepenultimate Glaciation. It is unlikely to be later in view of the presence of *Machaerodus*, *Hippopotamus*, *Dicerorhinus etruscus*, and others, and unlikely to be earlier than the Early Glaciation (Gunz) in view of the presence of *Elephas antiquus* and other typically Pleistocene species."^{14a}

Eoanthropus dawsoni

Another fossil jaw, together with portions of a skull and a large canine tooth, came to light in the gravels at Piltdown in Sussex, during 1911-1913. This being is named after his discoverer as "*Eoanthropus dawsoni*", and is held to "represent the early Pleistocene ancestor of the modern man".¹⁵ His "is a thick skull, thicker than that of any living race of men, and it has a brain capacity intermediate between that of *Pithecanthropus* and man".¹⁶ He also lacked the prominent brow-ridges and the ferocious appearance of the Neanderthal man. As to the actual implements used by this Piltdown man, we learn as follows:—"There were in the stratum containing the skull certain eoliths, which were no more convincing than others of their kind. In the stratum above there were a number of rude flakes, much more evidently bearing the marks of human workmanship. They are not unlike the flakes used in the Middle

^{14a.} Dr. F. E. Zeuner, The Pleistocene Period, (1945), p. 70.

^{15.} Sir Arthur Keith, New Discoveries Relating to the Antiquity of Man, (1931). p. 467

^{16.} Wells, p. 72.

Palaeolithic....”¹⁷

The Palaeolithic Age

The Palaeolithic Age forms, with the exception of the Eolithic Age, the most considerable period in the existence of the “Hominid”—a term that stands for what may be more properly called “men and proto-men,” i.e., for those highest primates, that fashioned and used implements. During the Eolithic and the Palaeolithic ages, the Hominid found himself faced with a daily necessity of snatching a few morsels, either by plucking up some edible roots and fruits, or by killing some animals. This represents a stage, wherein the Hominid had not yet learnt to control the procurement of food, or to cultivate. The Hominid had to solve the problem of both procuring the food and keeping up the supply of it, in co-operation with others of his kind.

To explain, his contemporaries in the animal world included such ferocious and large-sized animals as the mammoth (*Elephas primigenius*), the sabre-toothed tiger (*Machairodos neogaeus*), the cave-lion, the cave-bear, the woolly rhinoceros (*Rhinoceros tichorhinus*), the hippopotamus (*Hippopotamus amphibius*) etc. The necessity of self-preservation from these beasts and of hunting them for procuring food made it impossible for the palaeolithic Hominid to survive in seclusion.¹⁸ He dwelt mostly in natural caves, or under-ground, or on the top of trees—wherever, in fact, he had some chance of protecting himself from such beasts. There was the need of mutual co-operation, not only in hunting big game, but also in the process of regulating the procurement of food, thus obtained. There was always the chance of only a few persons (out of a large group), acquiring a large surplus at one time, and others (of the same group), having none at all at that time, or for weeks on end. There was also the chance of the favoured few running

17. Macalister, p. 200. The very existence of this “earliest Briton”, claimed by Sir E. Ray Lankester, a British authority, as “the most startling and significant fossil bone that has ever been brought to light”, and by Sir Arthur Keith, another British authority, as “one of the most remarkable discoveries of the twentieth century”, has been recently threatened by two eminent geologists, Mr S. H. U. Bowie and Dr C. F. S. Davidson. They have argued that the “seven pieces of the skull and the jawbone (of the Piltdown man or *Eoanthropus dawsoni*) were all found to possess much lower radio-activity than that shown by a large number of bones of the pleistocene age taken from various other gravel beds.” Hence they conclude that these bones “were most probably post-pleistocene and much younger than the gravel in which they were found”. (*The Hindu*, July 3, 1954, p. 7).

18. Cf. *A History of the U.S.S.R* (Pt. I, Moscow), p. 15.

the same risk as the latter, at some other time. It was such natural causes in the life of primitive man, that compelled him to form compact large groups, and lead a community life, known to the anthropologists as "primitive communism". In this, the ownership of the means of production lay with the whole community. Incidentally, it is at least since the days of the "Peking Man", that the Hominid appears to have found in the dog a faithful friend, that aided him in his hunting. None the less, when, on occasions, nothing else was available by way of food, i.e., when he was faced with "scarcity" or "famine", he used to consume his "friend" also.

Palaeolithic implements may be most conveniently divided into three main groups, those of the Lower (or Earlier) Palaeolithic Age those of the Middle Palaeolithic Age, and those of the Upper (or Later) Palaeolithic Age. The former has two main subdivisions viz, Chellean and Acheulian; the second is formed only by the Mousterian stage; whereas the last has three main divisions viz, Aurignacian, Solutrean and Magdalenian.

The most primitive form of the elephant, known to scientists as the *Elephas antiquus*, appears to have disappeared by the end of the Lower Palaeolithic Age, whereas the mammoth was to be found throughout all these subdivisions of the Palaeolithic Age. It is, however, interesting to remember that the *Elephas antiquus* is more directly connected with the modern elephants of Africa and India than the mammoth is.

Most of the stone implements of the Eolithic, Palaeolithic and Mesolithic Ages were made in flint, which is, chemically, a hydrated silica, black, grey or brown in colour, and liable to fracture or flake off under heavy blows or under pressure. When it flakes off, it obtains a good cutting edge. While this flaking is due to brittleness, its (the flint's) "hardness is greater than that of steel".¹⁹ In India and the Near East, the flint is often replaced by the quartzite, which is far more refractory than the former.

The hand-axe, also called "coup de poing" or "boucher", represents the most characteristic implement of the Lower Palaeolithic culture. It was, as Prof. V. Gordon Childe states, "a sort of universal tool of all work, an unspecialized instrument".²⁰ It may be described as an almond-shaped or a pear-shaped implement, with scales all over the body, which is convex in the middle. Originally, it had quite an irregular edge, but later it became finer and also flatter. It is not, however, till the Neolithic Age that grinding and

19. E.B. (14), IX, p. 382, i

20 Childe, ST., p. 4.

polishing technique is completely mastered by man, and the hand-axe possesses a regular edge and gets rid of the scales. Another popular implement of the Palaeolithic Age was the scraper.

Making of Stone Implements and of Fire

In the following passage, Sir J. Lubbock (better known as Lord Avebury) has correctly described the process, by which man gradually learnt the art of making stone implements: "A very small step would lead man to the application of a sharp stone for cutting. When the edge became blunt the stone would be thrown away and another chosen, but after a while, accident, if not reflection, would show that a round stone would crack other stones, and thus the savage would learn to make sharp-edged stones for himself. At first, as we see in the drift specimens, the blows would be more cautiously and thoughtfully given, and at length it would be found that better work might be done by pressure than by blows. From pressure to polishing would again be but a small step. In making flint implements, sparks would be produced; in polishing them it would not fail to be observed that they become hot, and in this way it is easy to see how the two methods of obtaining fire may have originated."²¹

In this context, we cannot but add that it would be no matter of wonder in the light of this explanation, that already in the time of the Peking Man (the *Sinanthropos pekinensis*, now called by Prof. Ruggles and others "*Pithecanthropus pekinensis*"), whose remains have been found associated with Chellean implements in the cave of Chou Kou T'ien, the use of fire was known.

Lower Palaeolithic Age

The pre-Chellean implements have, naturally enough, an extremely rude form. They are succeeded by the Chellean and Acheulian implements, that include the massive hand-axe, which exhibit, comparatively speaking, a somewhat more improved workmanship than the pre-Chellean ones. It is out of the hand-axe that other specialized instruments gradually evolved. Already in the Acheulian times, as Prof. Burkitt points out, an oval form develops, with the edges showing a "S" twist. The typical Levallois flake, that is sometimes as much as 15 to 18 cm. long, has edges "made even and sharp by some "resolved" flaking."²² Another authority

21. Lubbock, *Prehistoric Times* (quoted in Clodd's *Primitive Man*, p. 33).

22. E. B. (14), II, p. 238, ii; IX, p. 383, ii.

states: "Flint artifacts found on the Acheulian level also indicate that wooden handles, hand-axes, and mallets or strikers made of stone and of wood, for chipping flints were then utilized. The technology of flint chipping was advanced in Clactonian-Chellean times when flakes were struck from cores. Such flakes are characteristic trait of the Later Acheulian period, and to them the name Levalloisian has been given."²³

As to the dating of the subdivisions of the Palaeolithic Age, a relative precision in matters of the "absolute chronology" (i.e., the chronology expressed in number of years) of geological data has been recently obtained by the application of the equations of radioactive equilibrium. The Russian astronomer M. Milankovich connected the periodical oscillation in earth's orbit with changes in solar radiation. He compared these results with the climatic oscillations represented by the Ice Ages. Besides some Soviet scholars, certain German scientists, including Koppen and Zeuner, and certain English scientists including Paterson etc., followed up his researches. This method, known as "geochronology", has enabled the "radiologists to replace a purely empirical table of geological events by one of precise chronology, expressed in units of millions of years."²⁴

According to the estimates of Dr. Zeuner, one of the most prominent scientists in this field, the Chellean or Abbevillian period commenced about 5,50,000 years ago, and continued up to 4,70,000 years ago; the Acheulian industry is to be dated approximately from 4,30,000 to 1,50,000 years ago; whereas the Levalloisian industry held sway during 2,30,000—80,000 years ago and the Magdalenian during 20,000 = 13,000 years ago.

The implements of the Lower Palaeolithic Age have been found throughout western and central Europe, northern, central and southern Africa, western Asia, Arabia, India and even North America and Mexico.²⁵ As to the course of the development of the two types of industries viz, cores and flakes, the opinion of one school is best stated in the words of Prof. A. C. Haddon: "A flake-tool technique in the earliest known human times extended across the

23. Prof. M. Jacobs and Prof. B. J. Stern, *Outline of Anthropology* (New York), (1928), p. 86.

24. A. E. Fersman, *Soviet Science*, p. 18; cf. Albright, p. 49 f. For standard works in this field, vide Dr. F.E. Zeuner, *First Annual Report of the University of London Institute of Archaeology* (London, 1937); also *Dating of the Past: An Introduction to Geochronology* (London, 1946).

25. Morgan, *Pre-historic Man*, (London, 1924), p. 45; Perry, *Growth of Civilization*, p. 20f.; CAH., p. 36, Childe, MAE, p. 27.

whole of Eurasia, since flake-tools were made by Sinanthropus and Eoanthropus, and they characterized the still earlier Red Crag industry. As O. Menghin has shown, in Lower Palaeolithic times a predominantly flake-tool, or "uniface," technique extended from North China in the east to North-Eastern France and the southern half of England in the west; the Cromer-bed industry was mainly of this type. It is associated in Europe with a more or less arctic climate and fauna. The development of the culture in Western Europe was through Pre-chellean and Clactonian to Mousterian, with the Levalloisian as a side-branch. In North Africa, a "Mousterian" or Aterian industry was evolved from the Levalloisian. Flake-tool makers spread down East Africa to South Africa and, as elsewhere, when in contact with the core-technique they developed an industry very like the Mousterian. Throughout all Africa, a core-tool, or "biface", is the oldest known technique, and . . . it developed from a chipped-pebble industry."²⁶ Since this industry is found, in his opinion, in the Continent, associated with interglacial conditions, it must have hailed from Africa. Other authorities doubt this, and trace the origin of both 'uniface' and 'biface' to rude pre-Chellean hand-axes, that are only partly worked on.

Middle Palaeolithic Age

The Lower Palaeolithic Age, which probably began with the end of the second Ice Age (Mindel), ended with the beginning of the fourth and the last Ice Age (Würm), according to the generally accepted reckoning. This was succeeded by the Middle Palaeolithic Age, that witnessed the rise of a new type of "homo", viz. the Neanderthal man, a chinless creature, with ferocious-looking, beetling brows, a projecting face, and a receding forehead. It was this man who appears to have been primarily responsible for the making of the typical Mousterian industry. The passing of the Ice Age thus resulted in the birth of a new man and the origin of a new industry. From now on, we find the number of this highest primate increasing rapidly. The relics of the *Homo neanderthalensis* have been found, *inter alia*, in a cave in a ravine called Neanderthal

26. A. C. Haddon, *History of Anthropology*, (Thinker's Library), pp. 88-89. Dr. Willard F. Libby, nuclear physicist of the University of Chicago, has recently demonstrated that "the (last) Ice Age in the Middle West of American (contemporary with the last European Ice Age) was at its height 12,000 years ago and not 20,000 years ago, as geologists have been telling us" (*Sunday News of India*, 20-10-50). See appendix I

(Germany), at Spy (Belgium), Krapina (Croatia), La Chapelle-aux-Saints, La Quina, La Naulette, La Ferassie, Le Moustier and other localities in France, at Malaunaud, Jersey, Forbes Quarry (Gibraltar), in Malta, at Galilee (Palestine) etc.

During this age, the core implements, like the hand-axes of the Chellean and Acheulian ages, are gradually, though not completely, supplanted by the flake implements; and we witness in this industry a growing differentiation or an increasing specialization of different tools and weapons. "From the flakes, various implements were fashioned, 'points', tools for piercing, cutting and scraping, and sewing, side scrapers, which were similar to the point, but without its pointed end, probably employed in scraping the inside of skins in preparing them for use,....For the first time, we encounter a weapon of offence in a lance-head with obvious notch for attachment to a shaft."²⁷ Mousterian implements have been found not only in the southern and the western parts of the Continent, but also in northern Africa, western Asia, India, Siberia, South Russia, Somaliland, the U.S.A. etc. The Palestine tools are said to be related to both the Levalloisian and Mousterian types, but to be exact equivalents of neither; thus, they may be deemed as furnishing a link between the two. The Mousterian implements from North Africa, include, besides points and side-scarpers of the usual types, certain "very neat tanged points", that served as arrow-heads and javelin-heads.²⁸ Caves formed the most important resort of this man, and the corpses of the arctic animals, such as the mammoth, the woolly rhinoceros etc. that he would hunt, he would often drag to the mouth of these caves in order to consume.²⁹

Perhaps, the earliest religious ideas of man may be traced to the *Homo neanderthalensis*, who is known to have observed ceremonial burial, and may, therefore, be supposed to have had some ideas about life after death. The burial in the cave of Chou Kou T'ien of the remains of the *Sinanthropus pekinensis* (Peking Man) may or may not have been purposeful. But there is evidence to show that more than dozen Neanderthal skeletons, found in France and elsewhere, were "ritually buried in the caves where their group lived.....The head sometimes rests on a stone pillow, with stones above and around it to relieve the pressure of the earth".³⁰ Mr. H. G. Wells observes: "One of the best-known Neanderthal skele-

²⁷. Fallaize, p. 47.

²⁸ Childe, MAE, p. 27; cf. De Morgan, *Prehistoric Man*, p. 52; CAH., I. p. 37; etc.

²⁹. Childe, MMH, p. 54.

³⁰. Fallaize, p. 49.

tons is that of a youth, who may have been deliberately interred. He had been placed in a sleeping posture, head on the right forearm. The head and arm lay on a number of flint fragments carefully piled together 'pillow fashion'. A big hand-axe lay near his head, and around him were numerous charred and split ox bones, as though there had been a funeral feast."³¹ Prof. Macalister points out that while at Le Moustier, the nose of the dead was covered by flint-flakes, the grave at La Chapelle yielded evidence about "burial rites of some elaboration, involving a funeral feast".³²

The Neanderthal man is supposed to swerve a little from the main anthropoid line of the ancestry of the Modern Man towards the pithecid (or ape-like) type. The chief characteristics of this man may be brought out by the following observations about the specimen found in a cave at Spy, in Namur, Belgium. According to the discoverers of this skeleton, "the distance which separated the man of Spy from the modern anthropoid ape is undoubtedly enormous; between the man of Spy and the Dryopithecus it is a little less."³³ According to Prof. Edward Clodd, this man "was powerfully built, although of short or stunted stature, probably about five feet, like the Fuegians, Bushmen, Minicopies of the Andaman Islands, and other extant savages. Broad-legged, with curved thigh-bones, his walk was shambling, as that of the gorilla or of bandy-legged persons. His long skull had a low, receding forehead with overhanging brows, furnished with bushy hair; the nose was flat, the nostrils large; the ears somewhat pointed, the big heavy jaw "prognathous" or "snouty"; the canine teeth fang-like, and the chin very small and retreating. The skin was probably copper-coloured, and largely covered with long straight hair like that of the Ainu of Yezo, the northern island of Japan."³⁴ According to Prof. Macalister, he represents the end of the chain of Modern Man's ancestry, that runs down to the Java Man, the Mauer Man, the Piltdown Man etc.³⁵.

Certain species of *Homo*, that are either intermediate links between the *Homo neanderthalensis* and the *Homo sapiens* (or the Modern Man), or a cross-breed of the two, have been recently unearthed. One of these was found in a cave near Broken Hill, a well-known mining centre in North Rhodesia (South Africa), in

31. Wells, pp. 80-81.

32. Macalister, p. 345. Also see *L'Anthropologie*, XIX. 519; Prof. R. Munro, in ERH, IV, p. 464. ii-465. i.

33. Clodd, *Primitive Man*, p. 63.

34. Ibid., p. 64.

35. Macalister, p. 314.

the year 1921. "His brain space was small (1,300 c.c.); in point of development the brain falls below that of *Eoanthropos*. The eye-brow ridges are extremely massive, and the face has features which recall those of the gorilla."³⁶ According to another authority, this *Homo rhodesiensis*, "while showing resemblances to Neanderthal man in certain features, had, so far as these remains show, none of the special characteristics of a Neanderthal man; its brain-case, neck, teeth and limbs were quite in the human line."³⁷ Generally, this ancient Rhodesian is recognized as a contemporary of the Neanderthal man, representing only another branch of the same stock, but others look upon him as a species intermediate between the Neanderthal man and the modern man.³⁸ A primitive skull found in the Pleistocene deposits at Talgai, Queensland, Australia, and two fossil skulls, unearthed in similar deposits at Wadjak in Java are supposed to furnish intermediate links between the Neanderthal man and the native Australians. About a dozen or so skeletons were exhumed at Nazareth, Carmel etc., in Palestine, and are supposed to "represent a mixed race, intermediate between palaeanthropic man (*Homo neanderthalensis*) and neanthropic man (*Homo sapiens*) and reflecting several stages between the two extremes."³⁹

In 1952, Dr. Leakey discovered in the Lower Pleistocene deposits at Kanam (Kenya) a jaw, associated with "pre-Chellean" industry. He further found in the Middle Pleistocene deposits at Kanjera some large, thick and narrow skulls with a low cranial vault, and not very pronounced brow-ridges. They were associated with hand axes. They are supposed to represent "a generalized and rather primitive type of the *Homo sapiens*."⁴⁰ "These discoveries of Dr. Leakey are startling and of the greatest importance, as they demonstrate the existence of the *Homo sapiens* type of man at an enormously more remote time than has hitherto been accepted."⁴¹

Upper Palaeolithic Age: Aurignacian Culture

The constant creation and use of the stone implements must

³⁶ E. B. (14), XIV, p. 764, n.

³⁷ Wells, p. 85; cf Fallaize, p. 27.

³⁸ Albright, p. 55. Cf A. C. Haddon, *A History of Anthropology* pp. 54-57, about other instances of the "near men" and the "new men", that differ from the standard types mentioned above. Cf. M. Hermanns, in *The Times of India*, October 2, 1951, on the "African Ape Man". "The Swartkrans type has human-like jaw, teeth and skull with a brain volume of about 900 c.c. to 1,000 c.c. This is within the human range."

³⁹ Ibid., p. 56.

⁴⁰ Ibid.

have, like numerous other factors, including climatic changes (e.g., the Ice Ages etc.), affected man's way of living and even his brain. And the increasing cerebral capacity must have also aided the discovery of new devices. Thus, we find the origin of the Neanthropic (New Man) species corresponding almost exactly in time to the beginning of the Upper Palaeolithic Age. The "near-man," the Palaeanthropic species, vanished almost all of a sudden with the appearance of the new man, leaving his heritage to the latter. The latter did not merely borrow it, but developed it, with an accelerated speed. As to the regions, occupied by these earliest of the new men the following quotation may shed some further light: "By the pluvial period that is to be equated with the last, or Würm, ice-age in Europe at any rate, the desert was undoubtedly occupied by men of modern types as contrasted with the extinct species of P. It down or Neanderthal. These have left their implements throughout Little Africa, in Palestine and Syria and also in Egypt, implements which are allied, and in some cases probably ancestral, to those introduced into Europe with the first neanthropic stocks in Aurignacian times."⁴¹

The flake implements of the Mousterians were succeeded by those of smaller forms, characteristic of the Aurignacian culture. The latter also exhibits a commoner use of bone and ivory, that are occasionally met with in earlier period. We also witness in this age the earliest evidence of that aspect of civilization, which gives us the "gentleman" out of the mere man viz. the clothing. Of course, this earliest clothing was made of hides and skins, which have perished; but the needles, awls etc., that they made of bone and ivory,⁴² for stitching or sewing the primitive garments of hides and skins, have been left behind by them. And they suffice to show that the Neanthropos was far more "civilized" than any of his predecessors.

The relics of some of the earliest of the *Homo sapiens* (Modern Men) viz., the slender "Aurignacians" (or Combe-Capelle men), the tall Cro-Magnon men, the men of Grimaldi (or Grotte des Enfants), etc., all these "are found predominantly in caves".⁴³ Gradually this New Man evolved a great variety of tools, including saws, drills, gravers, scrapers of various types etc. Of bone and ivory, the Aurignacian men and their successors of the Upper

41. Childe, MAE, p. 29.

42. Perry, p. 27.

43. Fallaize, p. 50. The Grimaldi man, with his long skull, large teeth, protruding jaw and receding chin, is adjudged by many scholars to have been a forerunner of the Negroid race.

Palaeolithic age made a variety of implements, including the "awls, needles, spatulae, and lance-points," as well as a "tool, which probably was intended to straighten shafts of lances or arrows". Indeed, it was the Aurignacian man, who invented the earliest mechanical device viz. the bow. This weapon made the New Man a most fearful hunter, as compared to any of his predecessors. In the successive stages of the Upper Palaeolithic Age, one can even trace the gradual popularization of the bow and the arrow, as they were the most effective of his weapons. That hunting with the "bow and arrow" came into vogue in the Upper Palaeolithic Age is borne out also by a series of cave-paintings of this age, that is to be found especially in southern and western Europe. Undoubtedly, his new weapons enabled him to have more safety and more security, more material wealth and more leisure, which enabled him to pay attention towards artistic matters.

The new weapon of the "bow and arrow" was pre-eminently suited for killing such a swift animal as the horse, that roamed over the Continent in the Aurignacian Age.⁴⁵ In the Aurignacian strata at Solutre, skeletal remains of about a lakh horses were unearthed. Another example of his success in hunting during the Aurignacian period is furnished by a cave, in Sicily, wherein bones of no less than 2,000 hippopotami have been found. Prof. V. Gordon Childe suggests in a popular work that it was, perhaps, on account of "too successful hunting," which the "bow and arrow" enabled him to engage in, that the woolly rhinoceros became extinct at the end of the "Aurignacian-Solutrean" epoch—which, for the sake of convenience of the lay readers of that work, he calls "the Aurignacian Age."⁴⁶ Other animals that were commonly hunted in the Aurignacian Age included the reindeer, the mammoth, the bison, the cave-bear, the cave-lion etc. If the reindeer supplied the bones, the mammoth furnished him with the ivory for the delicate workmanship that he mastered during this epoch.

Spiritual Advance of the Aurignacians

As indicated above, the New Man's new weapons, especially his "bow and arrow", enabled him not only to protect himself and to dominate over the rich fauna around him, but also to secure more leisure than was possible at any time previously, and to pay attention to artistic creation. Art without minimum leisure is in-

44. Perry, p. 27.

45. Cf Prof. Myres, in CAII., I, p. 51; Winholt, p. 25.

46. Childe, MMII. p. 60.

conceivable; none the less, art did not originate just to enable the man to spend his leisure.

To the Aurignacian period, that is, to the very first stride of the New Man, belong a number of inventions and a number of "obsessions" or "ideas" (whatever one would like to call them), which were certainly beyond the reach of any of his predecessors. The great advance that the man of this age made over his predecessors as regards the cranial capacity was, indeed, justified by the results he was able to achieve, within a comparatively very short time. It is to this epoch that some of our earliest arts, e.g. sculpture, painting, music, etc. can be traced. It is to this epoch that our clarity of utterances may be traced. None of the predecessors of the Aurignacian must have been half as intelligible as the Aurignacian himself. If his vocal ability enabled him to utter a few tunes, the stringed bow, perhaps, supplied him with the rhythm of the resonant twang. The earliest visual representations of man's religious ideas or obsessions, the earliest figurines of the Mother Goddess, belong, as will be seen presently, to this epoch. Made in stone and in ivory, they already in this age exhibit "a mature art".⁴⁷ Thus, the increase in cranial capacity also made it possible for him to use his hand with much more dexterity than was possible ever before. It is this that enabled him to draw and paint pictures with such a steady hand.

Mother Goddess

During this epoch, we come across the figurines of the Mother Goddess, that are endowed "with rather prominent jaw, long-braided hair, and frequent steatopygus".⁴⁸ Scholars, who express their dissatisfaction about the lack of "art" in the representation of this steatopygous appearance, probably forget that steatopygy is actually a characteristic of the Negroid females, that it was originally among such people that the worship of the Mother Goddess figurines may have begun, and that in the view of the makers of such figurines, steatopygy may have been intended to show the profusion of the feminine attributes of the divinity: It is the benefits of such attributes, e.g., fertility, increase in numbers etc., with which the Mother Goddess was supposed to favour her worshippers, through some magic correlation. She was the source, the inspirer, the fulfiller of all the productive and reproductive acts

47. Fallaize, pp. 51-52; De Morgan, *Prehistoric Man* p. 193. Jacobs and Stern, *Outline of Anthropology*, p. 88.

48 CAH, I, p. 50.

and functions. Such steatopygous figurines spread over a considerable area including Spain, North Africa, Syria, Anatolia etc., and in later times, they were found also in Crete and in India. Steatopygy is actually observable among the Bushmen, Hottentot, and other women. The Negroid origin of the Aurignacian culture, presenting such figurines, "is, perhaps, to some extent, supported by the negroid characters, which some anthropologists find in the physical characters of Grimaldi Man."⁴⁹ It is interesting to remember here that a cave at Grimaldi yielded five figurines of the Mother Goddess.

The Aurignacian painter began with modest attempts: "The oldest representations, assigned to the Aurignacian phase, are just profile outlines, traced with the finger in mud, scratched with a flint on the rock, or sketched in charcoal; no attempt has been made at perspective or to fill in details."⁵⁰

The Aurignacian artist developed ultimately into a supreme painter, whose art, when first discovered, appeared to be too masterly and modern to be that of a primitive hand. The accidental discovery in 1868 of the colourful paintings drawn by the Aurignacian artist in the caves at Altamira in Santillana del Mar (not far from Santander, the headquarters of a northern district of Spain) left the world of scholars and artists not only sceptical but unappreciative of the merits of those paintings. The dumb but expressive witnesses of his art included about a score of bisons and many wild boars and wild horses, painted with an amazing freshness and vigour. But their testimony went unheeded, despite the irrefutable appeal that they contained about their being drawn direct from nature. Even the discovery in 1894 of the beautiful engravings in the caves of La Mouthe (in the bed of the Riviera), containing similar representations of bisons, reindeer, wild horses, ibexes and other palaeolithic animals, left the academic world demurring at the very suggestion of palaeolithic paintings. But the evidence that was accumulating there at Combarelles and other places, was ultimately found to be too overwhelming for the scientists to persist in scepticism.

For the mere art student, this sudden outburst of artistic activity in the Upper Palaeolithic Age has been a matter of wonder and admiration, especially on account of the great amount of per-

49. Fallaize, p. 71. The Grimaldi skulls of Europe represent, according to Dr. Elliot Smith, not a Negroid race, but mere "variants of the Mediterranean race".—*Current Science* (Dec. 1936), VIII, p. 487. vide supra, footnote 43.

50. Childe, MMH, p. 61. Cf. E B (14), II p. 241, i

fection achieved in these cave-paintings.⁵¹ It also appears quite strange that the period of these masterful activities roughly corresponds to—and is, in fact, largely restricted to—the Upper Palaeolithic Age. The neolithic man appears to have discontinued this art of cave-painting in the greater part of the world, including the Continent and Siberia.

To the student of history and anthropology, it is clear that the motive behind these cave-paintings was the fulfilment of the primary necessities of life: It is to the faith in magic that we owe the birth of these cave-paintings, which are generally done in red or yellow ochre, mixed with oil. Here it is well worth remembering that red ochre mixed with oil was used in numerous rites connected with the worship of the Mother Goddess and that it signified blood of the sacrificed victim. In these paintings, as in the contemporary figurines of the Mother Goddess, we find the first artistic fruits of the religious activities of the New Man, the first visual representations of the religious conceptions of mankind. These earliest artistic activities were essentially connected with his problem of obtaining food and the prosperity of the society. The cave-paintings depicted scenes of hunting in which we find the reindeer, mammoth, bison, wild horse etc., either as being attacked by some hunters, or as having some arrows in their sides. It appears quite certain that in the ritual connected with hunting, a hunter was actually brought before these cave-paintings, and was thus induced by an example to hunt as successfully. Magic rites, connected with them, were supposed to infuse an amount of efficiency in the palaeolithic hunter. As has been correctly observed, the cave-painters formed an important section of the population of the Upper Palaeolithic Age.⁵²

Ornaments

With all these achievements, the use of personal ornaments may be regarded in one sense as the most noteworthy development of man's artistic tendencies. The earliest of such ornaments, to be met with in Chellean and Acheulian strata, consisted of perforated

51. "So life-like are they (these drawings) that in one picture we can almost see the wild horses dashing across the plain, while in another the artist has exactly portrayed the tense expression of the bison's head, as he charges his enemy"—M. V. Wedgwood Heath, *Man the Toiler and Inventor*, pp. 3-4.

52. F. B., (14), II, p. 241. Also cf. *Ibid.*—"The weirdness of the caves must have induced a state of mind on which suggestion would work easily and the officiating sorcerer would induce self-confidence in the hunter. And since in matters of the chase, self-confidence is half the battle, the sorcerer's rites were no doubt quite effective."

flints and shells. In many cases, their magico-religious or amuletic significance is quite clear. During the Aurignacian epoch, we witness an "extensive use of personal ornaments in the shape of beads of bones and ivory or perforated teeth of animals such as the wolf, for necklaces."⁵³ The Cro-Magnon men are said to have worn also collars and bracelets of shells that were strung together, and also to have "painted or tattooed themselves with metallic oxides".⁵⁴

We find the continuation of some peculiar Aurignacian ornaments during the Magdalenian period. During the latter, sea-shells and cowries were so valued that they were brought to the Dordogne from the Mediterranean. Further, the teeth of bears, horses and reindeers, perforated as in the Aurignacian period, were used for the sake of ornaments, probably after being strung into necklaces.⁵⁵ Such tooth-ornaments were apparently worn, perhaps, for efficacy or efficiency, that the teeth showed in the mouths of the living animals, and that magic reinfused them with (in the opinion of the primitive man) even after they were out of them. Or, they were supposed to make their wearer immune from the effects of their counterparts in the mouths of the living animals through some sort of correlation established between them by means of sympathetic magic.

Engravings on bone, and subsequently, carvings on stone and ivory in relief and in the round also came into existence for the first time during the Aurignacian epoch. Engraving on ivory is a very difficult performance; but the *Homo sapiens* mastered this art with the aid of a newly-fashioned implement, usually bone-made and now called "burin." With this and other tools, he "modelled animals in clay, decorated weapons with representations and formal designs, executed bas-reliefs on the rock walls of cave shelters, and engraved or painted scenes on the ceilings of caverns."⁵⁶ Whether it was in the case of personal ornaments, or of representations of the Mother Goddess, or of the cave-paintings, the motive behind all such important activities of the Upper Palaeolithic man appears to have been that of acquisition of greater security and more "wealth", i.e., more food. The art of the Upper Palaeolithic man was not for art's sake, but for the sake of life. Magic, which played an important part in the life of the Upper Palaeolithic man, formed, indeed, the basis of all this art, even as it was of all his religious activities. But the greater leisure that he acquired as a result of the

53. Fallaize, p. 51.

54. Taylor, *The Origin of the Aryans*, p. 100.

55. Fallaize, p. 60, Childe, WHH, p. 38.

56. Childe, MMH, p. 60.

increase of his "wealth", he utilized not only in these essential artistic activities, but also in fashioning newer and better weapons.

Ceremonial burial became much more elaborate than at any time previous to the Aurignacian epoch, "the bodies being often buried in red ochre with beautifully made implements as well as ornaments and necklaces".⁵⁷ Prof. R. Munro remarks: "The sepulchral phenomena associated with some of the human skeletons, disinterred in the Mentone caves (Balzi-Rossi), notably those known under the names of *Barma Grande* and *La Grotte des Enfants*, leave no doubt that the bodies had been intentionally buried with their personal ornaments, coiffures, necklets, pendants etc., made of perforated shells, teeth, fish vertebrae, pieces of ivory etc. Among the grave-goods discovered along with some of these skeletons, were one or two well-formed implements of flint, which differed from those met with in the surrounding matrix in being made of large flakes of surrounding material, and showing a style of workmanship more akin to the Neolithic period."⁵⁸

Capsian Culture

During this age, a somewhat specialized variety of this Aurignacian culture, known as Capsian after Gafsa in Tunisia, prevailed over a vast territory, including North Africa, Syria, Spain, Southern France etc. Indeed, many scholars hold that the Capsian culture was the mother of the Aurignacian culture, a view that is apparently supported by the direction of the spread of the figurines of the Mother Goddess. We may also remember here the view of Prof. Albright that "it would appear that *Homo sapiens* came from the south-east into Europe, driving Neanderthaloid man before him, and interbreeding with the conquered foe at the same time."⁵⁹

The distinctive characteristic of the Capsian culture is the introduction of long and thin flint-flakes; in the Aurignacian culture, we find these flakes almost totally supplanting the core. "The Capsian tools are made from blades. Though knives finely worked on the back, scrapers, rounded or on the ends of blades, awls and even gravers or burins are common, the types are less fine and varied than those of the Aurignacian of Chatelperron. Gravers in particular are all simple and not very common. But the great feature of the Capsian flint work is the tendency exhibited by all tools to diminish in size till in the later phases true pygmy implements

57. E.B., (14), II, p. 230, ii.

58. R. Munro, in E.R.E., IV, p. 464, i.

59. Albright, pp. 56-57; cf. supra, pp. 140f.

are absolutely predominant. No less surprising is the love of geometrical shapes that becomes ever more accentuated as time goes on."⁶⁰

In some respects the Capsian art was even superior to that of the Magdalenian art, but, undoubtedly, it lacked the vigour and life of the latter, which is best witnessed in the Altamira cave-paintings.^{60a} On the whole, even the Continental Aurignacian art was quite superior to the Capsian art. The Capsian life, as depicted in the cave-paintings, belongs to a warmer climate than that of the Aurignacians. The reindeer, the bison, the bear and other animals of the northern clime are replaced here by the common deer, the wild ox, the wild ass etc., of the warmer countries of the south.⁶¹

As to other arts and customs, characteristic of the Capsian culture, Prof. Childe observes: "Disc-beads of shell, made also by African Capsians, and bracelets of *Pectunculus* shell and stone, beads of callais and later of steatite were worn as ornaments. The dead were buried collectively in natural cave ossuaries or in stone-walled 'cists', usually circular."⁶² The microlithic flint industry of the Capsian culture was continued in the Tagus valley and elsewhere in the Mesolithic days, when it is often associated with caves. Sometimes, as in Spain etc., paintings of a conventionalized style appear in these caves; and this continues right up to the Copper Age.⁶³

Solutrean Period

The stone implements of the Aurignacian culture were succeeded by the leaf-like blades of the Solutrean culture, that are marked by the beauty and excellence of workmanship. According to Prof. J. L. Myres, "Their graceful 'laurel-leaf' and 'willow-leaf' blades, single-edged knives, and one-shouldered points suitable for missiles, economize labour by skill in the choice and manipulation of material, and might be mistaken for a high quality of neolithic work."⁶⁴ According to Prof. Fallaize, "The workmanship of these implements was never surpassed even by the exquisitely made flint daggers and spearheads of Denmark in the Neolithic Age."⁶⁵

During this age, the mammoth was quite abundant, though the reindeer had diminished in number and hyena of the preceding age

60. Childe MAE, pp. 30-31.

61. Fallaize, p. 52f.; Well, p. 97.

62. Childe, DEC. (4th ed., 1950), pp. 260-261.

63. Childe, DEC, p. 4 f.

64. CAH., I, p. 51.

65. Fallaize, p. 57; cf. Well, p. 92 f.

had well-nigh disappeared. The abundance of the mammoth has enabled the archaeologists to name it as "the Age of the Mammoth". In the Solutrean strata at Predmost in Moravia, remains of over a thousand mammoths, that constituted almost a small hill, were found. During this age, the woolly rhinoceros also roamed over the Continent and was hunted.⁶⁶ As to the origin of this culture, it is stated:—"The Solutrean culture appears to have arisen in East Central Europe through a contact of flake-tool makers with blade-tool makers, and the culture spread to parts of Western Europe north of the mountain zone."⁶⁷

Magdalenian Culture

The Magdalenian culture, which is, in a sense, a branch of the Aurignacian culture, confined mainly to France and surrounding regions, continued and developed the artistic side of the Aurignacian culture. Tools of bone, horn and ivory, made during this age, are exquisitely fashioned. The Aurignacian art, witnessed in sculpture and painting, became full-fledged, during this epoch. Indeed, this culture forms, according to Prof. Childe, the most brilliant achievement of the Old Stone Age, known to archaeology. According to Prof. de Mortillet, the Magdalenian bone needles "are much superior to those of later, even historical times, down to the Renaissance. The Romans, for example, never had needles comparable to those of the Magdalenian epoch."⁶⁸ At a Magdalenian site in Dordogne, were found what appear to be miniature trial pieces or preparatory exercises of the large-size cave paintings. Some of these "show corrections as if by a master's hand".⁶⁹ About

66. The reader will be interested to know that Prof. P. Kaptrey of the U.S.S.R. has recently achieved success in this that "plants and animals contemporaneous with the mammoth have been brought to life after lying in a state of suspended animation for at least twenty thousand years. The soil from which the organisms have been obtained were at a depth of 132 feet, far within the limit of the permanently frozen soil. In contemporary strata, bones of mammoth, woolly rhinoceros, bison, and musk-ox, indicating a period contemporaneous with the interglacial period, which came between the last two Ice Ages," have come to light.—(Science and Culture, No. 7, 1940, p. 419).

More than a score carcasses of frozen mammoths have been exhumed in NE. Siberia, especially in the New Siberian Islands, along with a few rhinoceroses. See Bassett Digby, *The Mammoth and Mammoth-hunting in North-East Siberia* (London, 1926). Further, "at a place called Starunia, a woolly rhinoceros of the type hunted and sketched by Upper Palaeolithic man was found by oil prospectors in an almost perfect state of preservation." (Clark, *Archaeology and Society*, p. 79).

67. A. C. Haddon, *History of Anthropology*, p. 90.

68. Wells, p. 93.

69. Childe, WHH, p. 37.

the disappearance of this Magdalenian art, Prof. Childe makes a significant remark: "When the forest invaded the steppe at the end of the ice age, magic was of no avail; bison, reindeer and mammoth vanished, and with them the Magdalenians and their art."⁷⁰

The bow and arrow had now become a favourite weapon of the New Man. It was, perhaps, this, that was in some measure responsible for the lesser attention paid to the fashioning of flint tools. Whatever that be, we find during this age thin flakes and splinters of flint "converted, with the minimum amount of work requisite, into scrapers, gravers, drills, and other simple tools."⁷¹ According to Prof. Fallaize, "their use was not as weapons, but as implements for use in the manufacture of weapons."⁷¹ The Magdalenian tools, such as spear-throwers, spatulae etc., were frequently decorated.⁷²

One of the most potent weapons, fashioned and used by the Magdalenian, was the spear-thrower. This new device, based on the principle of the lever, enabled him to throw the spear with a great speed. Some Australian aborigines and the Eskimos are known to have used this weapon as late as the beginning of this century.⁷³

The Upper Palaeolithic Age has left its remains in an equally large area as the Lower Palaeolithic one has. The area covered by the former comprises a belt, including south-western Europe, northern Africa, Syria-Palestine, southern Siberia, western China etc. Claims have also been put forth, in some cases with plausibility, on behalf of India, South Africa, central Siberia, central China, south-eastern Asia (especially Indo-China and Indonesia) and even America.⁷⁴

In addition to hunting the big game, in association with his companions, man indulged in a number of other activities to replenish his larder. He collected fruits, roots, nuts etc., gathered worms, insects, toads, eels, molluscs, crabs, and even snakes, and when he got the bow, shot down all sorts of birds. Year after year, his family began to prosper despite dangers from the big game and the natural calamities. As a result, he was compelled to seek other avenues. In quest of more and more surplus, man often herded together a number of smaller and less fearful beasts, like the sheep, the goat, the pig etc. When he had no need, he did not kill them immediately, but kept them with himself, near his abode, for times

70. Ibid

71. Fallaize, p. 58.

72. E. B., (14), II, p. 240, i.

73. Breadsted, *Ancient Times*, pp. 10, 12; E. B. Taylor, *Anthropology*, I, p. 154; Childe, MMH, pp. 59-60.

74. Fallaize, l.c., p. 4-, Perry, p. 21 f., etc.

of "scarcity" and "famine," when he would be unable to obtain sufficient big game. The dog, his faithful friend, guarded these new companions, and indeed, led the way to the domestication of other beasts. The domestication of these and other animals is already attested in the Upper Palaeolithic Age, both by representations in cave-paintings, and by actual remains of that age.

Some Aspects of "Primitive Communism"⁷⁵

It would not be out of place to quote here the description of some ancient Fennic or Finnish tribes, given by Tacitus, which may serve as a pointer to some aspects of life of palaeolithic communities: "They are wonderfully savage, and miserably poor. Neither arms nor homes have they; their clothing is skins, their bed the earth. Their arrows, for want of iron, are tipped with bone. The women live by hunting, just like men; for they accompany the men in their wanderings, and demand a share of the prey. And they have no other refuge for their little children against wild beasts or storms than to cover them up in a nest of interlacing boughs. Such are the homes of the young; such the resting-places of the old."⁷⁶

Conditions of the palaeolithic men must have naturally differed from time to time and from country to country. Hordes, that killed hundreds of mammoths, rhinoceroses or reindeers, must have often been large ones. In cold countries, such hordes often lived huddled up in rock-caves, or in fairly large shelters, built underground, as, for instance, they did in the U.S.S.R. "On the South Russian steppes, exposed to the full fury of polar gales, Gravettian hunters were able to take toll of the mammoth herds only because they could dig them shelters in the loess soil and roof them with skins or turfs....At Kostienki (Kostenki), on the Don, Soviet excavators recently uncovered such a palaeolithic house, 113 feet long and 18 feet wide; a row of nine distinct fireplaces down the centre suggest that it was the communal abode of a group of nine 'families'.....Very similar structures seem to have been inhabited by the neolithic Danubians in Central Europe, only they were rather smaller."⁷⁷

75. Supra, p. 141.

76. E. Clodd, *Primitive Man*, p. 80. For a more elaborate and accurate translation of the same passage, read Tacitus, *Historical Works*, (Everyman's Lib.), Vol. II, p. 342.

77. Childe, P.A., p. 45. Kostenki, meaning "a village of bones", derives its name from the bones of mammoths found here long ago, and is one of the most important palaeolithic settlements in S. Russia. Here we, perhaps, come across the oldest artificial dwellings in the world, known so far.

Geographical and other natural factors, as well as traditionalism in mankind etc., have often contributed to some sections of humanity keeping themselves aloof from all civilizing influence of later times. And travellers and anthropologists of the last two centuries have recorded the existence of quite a number of tribes and peoples, that appear to have struck to their ancestors' mode of life, and to their palaeolithic or neolithic economy. As an illustration, we may cite the instance of the "hairy Ainu, who like the filthy Hottentots, never wash themselves from birth till death, use bone and bamboo arrow-points to hunting and fishing, and live on raw flesh, sea-weeds and roots. They have no marriage customs, a man taking as many wives as he can afford."⁷⁸

Ordinarily in the Palaeolithic Age, there may not have been any need of making a war of plunder; but in times of scarcity, it is just possible that such did take place. That skirmishes did actually take place in the Palaeolithic Age is borne out by the palaeolithic cave-paintings from the Galeria del Roble (near Morella la Vella, Prov. Castellon, Spain), that depict scenes of such fights.⁷⁹

Mesolithic Age

The end of the last Ice Age, Würm, left mankind in a somewhat critical condition. With the retreat of the ice-cap towards the north, animals like the mammoth and the woolly rhinoceros vanished, others like the reindeer withdrew towards the north, so that the chief sources of food of the Upper Palaeolithic man disappeared. Forests of pines, oaks, birches, cypresses etc., began gradually invading the area, formerly occupied by the steppes. The implements that man used while dealing with the animals of the Upper Palaeolithic Age were rendered somewhat useless and out of date; and he had to devise a new set of implements, to do justice to the new problems that he was faced with. Man was not probably quite able to solve immediately these problems, created by the passing of the last Ice Age, very satisfactorily; so that the society of this age leaves an impression of scarcity and poverty, as compared to that of the Upper Palaeolithic Age. Gradually, however, man was able to devise sharp blades of flint for cutting timber (the precursors of the neolithic axes and adzes), with which he could encounter the problems of the forest. With the aid of these flint-blades, he was able to establish somewhat prosperous settlements

78. Codd, *Primitive Man*, pp. 70-71.

79. L. Adam, *Primitive Art* (1940, Pelican), p. 75.

in the central and southern regions of the Continent. Another explanation of the somewhat impoverished and isolated nature of the Mesolithic settlements lies in the fact that the disappearance of the game of the Ice Age, perhaps, did away with the necessity of co-operative or communal hunting between big groups of men and women,⁸⁰ and that co-operation by smaller groups sufficed for hunting smaller animals. Since the retreat of the last Ice Age, together with the invasion of the southern forests in the North, was extremely gradual, the change of implements must also have been imperceptible. And it is also possible that many of these new implements came from the South, where they were previously popular. In other words, the invasion of the southern forests was accompanied by many of the implements that were already in vogue in those forests. It is quite natural to find that during this age, "the collection of nuts, snails and shell-fish played a conspicuous part in the new economy."⁸¹ We know very little, indeed, as to how man lived in the warmer regions of the South during the Ice Age; but it is possible to imagine from this later evidence found in the Continent that the southern contemporary of the mammoth-hunter generally lived in smaller communities, hunted smaller animals, and utilized in greater quantities subsidiary items consisting of nuts, roots, shell-fish, moluscs, snails etc. Also fruits and vegetables were probably utilized by him in much greater quantities than by the mammoth-hunter himself.

With the passing of the last Ice Age, ended the "Pleistocene period" and began the "Holocene period". While the Ice Age had passed, and while the implements of the New Stone Age were not yet invented, man continued his struggle for existence mostly equipped with antiquated tools and weapons. Despite a few innovations, there was, after the passing of that Ice Age, no radical change in the economy, so that the Mesolithic Age may be correctly recognized as a part and parcel of the Palaeolithic Age. It may be defined as a continuation of the Palaeolithic Age beyond the geological epoch, known as the "Pleistocene period"; that is, it is the fag-end of the Palaeolithic Age, that is to be found in the "Holocene period." In fact, the Mesolithic Age is often called "the Epi-palaeolithic age", which, though uncouth, is in a way an appropriate term.

The commonest mesolithic implements consist of tiny flints, having various geometrical shapes—triangular, trapezoidal,

80. Cf. Childe, DEC (4th edn., 1950), p. 3.

81. Ibid., p. 4.

crescent-shaped, rhomboidal etc. The precursors of these "pygmy implements" or "microliths" are to be already met with in the Capsian culture.⁸² The microliths are generally in the form of flakes, blunted either on one edge or on both the edges. Prof. V. Gordon Childe suggests that "they must have been used to make composite tools and weapons by an extension of the idea already applied in the upper palaeolithic knives."⁸³ Dr. Vincent A. Smith has long ago suggested that "the best general explanation for the modes of use of the 'pygmies' is the assumption that they were always fixed in handles and holders, and utilized then in all sorts of ways."⁸⁴ Microliths are not confined only to the Mesolithic Age, but are spread over a much longer duration. Prof. Childe informs us that the microliths of the Mesolithic age are found scattered throughout the Continent and "are reported from the Kirgiz steppe, the Crimea, the banks of the Donetz, Dneiper, and Desna."⁸⁵ It is long since Mr. Reed noted that the geometrical pygmy flints are "found in India, Palestine, Egypt, North Africa, South Spain, Belgium", besides the British Isles.⁸⁶

With these and other weapons that gave rise in different localities to different cultures, e.g., Azilian, Tardenoisean, Swiderian, Maglemosean, Campignian etc., man hunted a number of animals with which, gradually, the forest had begun to teem. These animals included the wild boar, the red deer, the rabbit and other small and big games of today; and in these hunts, he was aided by his age-old friend, the dog. The different cultures of the Mesolithic Age have been differentiated in some measure by their geographical distribution; and no exact chronological sequence has yet been finally established between them. Secondly, at places like Grotte des Enfants, one can witness the process of the Aurignacian implements gradually diminishing in size, and passing through the stages of the Solutrean and Magdalenian industries, into the implements of the Azilian-Tardenoisean epoch.⁸⁷

The Azilian industry was first noticed at Mas d'Azil (Ariege) at the foot-hills of the Pyrenees. Characteristic implements of this industry include pygmy geometrical flints, that were also found at Fere-on-Tardenois (Aisne, France). Another class of typical Azilian implements is formed by the flat harpoons, made

82. Supra, p. 150 f.

83. Childe, P. A., p. 29

84. I. A., (1906), XXXV, p. 192

85. Childe, DEC, p. 138

86. I. A., (1906), XXXV, p. 189.

87. G. Clark, *The Mesolithic Cultures of Northern Europe*, (1930) Piette, *Liaus et Lacune*, (1895)

of stag-horns, with one row or more, usually with two rows of harpoon-teeth.⁸⁸ These replace the Magdalenian harpoons, that were made of reindeer horns, and were prominently cut out. The pygmy flints of the Azilian-Tardenoisean industry was probably "mounted with some form of cement on wood to form the sawlike teeth of some kind of harpoon", according to Prof. Fallaize.⁸⁹ This explanation, which may be compared with those given above, appears to be substantiated by a fact, noted by us at the end of this chapter.⁹⁰ Similar pygmy flints have been found, in the opinion of Prof. de Mortillet, in England, the western and southern Europe, northern Africa, parts of western Asia, India etc. and have been assigned by him to the Tardenoisian epoch.⁹¹ According to Prof. Childe, the Tardenoisians "spread over an enormous territory in Europe including the greater parts of the Iberian Peninsula, France, Britain, Belgium, South and Central Germany, Poland and Russia . . . In any case, Tardenoisians had reached Britain, Belgium, and South Germany in Boreal times."⁹²

A noteworthy characteristic of this period is the existence of polished painted pebbles: "The conventional painting of the Capsian folk is still more diagrammatic in the Azilian stage, and great numbers of pebbles are found painted with brush strokes that we now know to stand for standard types of man and beast."⁹³ This painting is done in red ochre, and among the designs one comes across the figures of a serpent, an eye, a leaf etc. The Azilian deposits at Ofnet in Bavaria reveal, in addition to the existence of the long-headed Aurignacian, also that of a broad-headed race.⁹⁴

The dead were buried in this age after decapitation, with their bodies laid in red ochre, and their heads facing west, a posture, which is apparently connected with the disappearance of the Sun in the west. The Sun, probably conceived as a spirit, set in that direction: It was to his abode that the departed soul was supposed to repair, of course in order to rise again in the next birth. Here we find ideas, that are precursors of those that made it obligatory in many lands to bury the dead with faces turned towards the west, and also of the ideas that made sun-gods like Osiris, or offspring of the sun-gods, like Manu Vaivasvata (Manu, the son of

88. Fallaize, p. 61.

89. Ibid., p. 62.

90. Supra, p. 160; 168 f.; etc. and intra, p. 173.

91. *Le Préhistorique*, (1900).

92. Childe, DEC. (4th ed., 1950), p. 7.

93. Wells, p. 97.

94. CAH, I, pp. 62, 64.

Vivasvat or Sun-god), the guardian spirits of the netherworld or the world of the departed.

Somewhat later than these industries of the Continent is to be found in the region of Palestine what Miss Gorod calls "the Natufian culture". The latter appears to us not exactly to bridge the gulf between the Mesolithic cultures of Europe and the earliest Neolithic cultures of the Near East, but to symbolize the passing of the culture of the Near East from the Mesolithic Age to the Neolithic Age. There is reason to suspect that while the culture of the more fertile riparian regions of the Near East had entered the Neolithic Age, the backward tribes of the mountainous regions in their vicinity retained the more ancient way of livelihood, but that at the same time, they adopted some of the implements like the sickle that properly belong to the neolithic economy, but that are, for this reason, found there amidst mesolithic implements. The "Natufian culture" of Miss Gorod is credited with having yielded the earliest examples of the sickle, which, thus, may not actually belong to a period anterior to the beginning of the Neolithic Age in the Nile or the Euphrates valley.

Just as in the case of the sickle—essentially an implement of food-producer—so also in that of the pottery, some developed cultures of the "Mesolithic Age" appear to supply examples of its prevalence. In both the cases, the explanation may be the same; i.e., simultaneously there probably prevailed neolithic cultures in other regions, whence the art of pottery was learnt or imported. One fact is sure, that already in the Azilian culture epoch, trade was carried on between distant places, for "shells of *columbella rusticana*, imported from the Mediterranean, reached the Falkenstein Cave."⁹⁵

The Swiderian industry of Russia and Poland, as well as the Maglemosean industry may be deemed as being contemporaneous with the Azilian-Tardenoisean culture. In the region of the Iberian peninsula, the latter is found to have been succeeded by the Asturian culture. The Campignian may be supposed to furnish another link between the early Mesolithic cultures and the Neolithic cultures, since it is known to have yielded instances of some crudely formed pottery. But the implements of the Campignian culture are on the whole of a larger size than those of the earlier Azilian-Tardenoisean culture, and it may be supposed to connect the latter to the eastern Neolithic culture, with which it may have been contemporary. The Industry of Campigny "was characterized by the

Campignian axe and pick, transverse arrow-heads, rough awls and scrapers associated with ox, horse and stag-bones, and charcoal from oak-trees and ash-trees...⁹⁶

Speaking of the early neolithic culture of the Alpine lake-dwelling, Prof. J. I. Myres has pointed out long ago that "their implements include harpoons, perforators and scrapers of bone and deer-antler perpetuating Magdalenian and Azilian forms, flake flints like those of Azil and Tardenois, and especially many miniature flakes, one use of which is here demonstrated by their occurring mounted lengthways like saw-teeth in wooden hafts."⁹⁷

96. Daniel, p 127.
97. CAH., I, p 72

CHAPTER VIII

PALAEOLITHIC & MESOLITHIC AGES IN INDIA

ONE of the wonders of Indian archaeology is that one of the most distinguished pioneers in the field of prehistory was to begin his work in India at a very early stage of the development of this field and that he was to devote no less than fifty years of his labours to it for the benefit of posterity. This pioneer is none else than Dr. Robert Bruce Foote, who found his first palaeolithic implement in the laterite gravels at Pallavaram as early as 1863.¹ The achievements of this scholar were unfortunately not supplemented to a desirable extent by the efforts either of his contemporaries or of his successors in that field, though there are now distinct signs of some of our contemporaries following his honoured footsteps. The result is that despite all the work done so far in this field, a clear picture of the different periods of the Palaeolithic and Mesolithic Ages in India is yet to emerge. In these circumstances, the writer has only to crave for the indulgence of the reader for the inadequacy of the treatment of this subject, in which he is himself handicapped by a lack of material at his disposal, as well as (be it admitted) by a lack of special study on his own part.

Before proceeding to study the implements of different periods, we may draw attention to such implements as have been found along with fossiliferous remains embedded in rocks of different geological epochs, since such implements are very few and since their paucity adequately gives an idea as to the real dearth of chronological evidence in the field of Indian prehistory. It is about 40 years ago that Dr. Vincent A. Smith made the following observations: "Only two cases in India seem to be known where stone implements have been found in fossiliferous beds associated with the remains of extinct animals. Mr. Hacket was fortunate enough to discover a well-made ovate instrument of chipped quartzite at Bhutra (Narsinghpur District, C.P.) in the Narmada valley, lying in undisturbed post-tertiary gravels containing the bones of *Hippopotamus namadicus* and other extinct mammals. Mr. Wynne ob-

1. Foote, *IPPA, Notes*, p. 109; "On the occurrence of Stone Implements in lateritic formations in various parts of the Madras and North Arcot districts."

tained an agate flake from similar gravels in the Godavari valley."² (See Table III.)

The Bhutra implement is a *coup de poing* of the Chello-Acheulian type according to some, and pre-Chellean type according to others. It was found in the lower alluvium deposits of the Narmada in association with the *Elephas namadicus*, *Elephas insignis*, *Hexaprotodon namadicus*, *Tetraprotodon namadicus*, *Hippopotamus palaeindicus*, *Bos namadicus*, *Bos gaurus*, *Rhinoceros namadicus* or *Rhinoceros unicornis* etc. "The boucher itself is formed of Vindhyan sandstone, such as might be procured at any point along the northern edge of the valley; it is of pointed oval shape, has a very symmetrical outline, and, although rather roughly chipped on the faces, is unquestionably a manufactured article."³ It was actually found at a site about eight miles north of Gadawara, embedded in "reddish, mottled, unstratified clay, about six feet above low water level, and about three feet below the upper surface of the clay, upon which there rested about twenty feet of the gravel with bones."⁴ A few rolled flakes and cores are said to have been found in the upper alluvium deposits of the same river in association with *Elephas namadicus*, *Equis namadicus*, *Hexaprotodon*, *Bos*, *Bubalus*, *Sus*, *Trionyx* etc.⁵

The agate flake of Mungi near Paithan (Hyderabad State) was found about thirty feet below the surface, "in uncompacted, sub-calcerous conglomerate or concrete, gravelly and containing shell, similar to those now living in the neighbourhood. Bones of mammalia have been found in these gravels including *Elephas namadicus*, *Bos* sp., and several portions of smaller bones and teeth, both of Carnivores and Ruminants."⁶ The Mungi implement has, according to competent authorities, "the fine form of a Levallois flake",⁷ and is, perhaps, the earliest microlith, known to Indian archaeology. Like other pygmy implements of later times, this must have also been engrafted into a wooden handle, to form a sickle. The discovery of such an implement in so early a stratum would substantiate the contention that such implements were invented by man in the warmer countries of the South to meet the peculiar environment of the dense forests, long prior to the time

2. IGL. (1909), II, pp. 90-91.

3. Brown, *Catalogue*, p. 58. See Table III.

4. *Ibid*.

5. *Current Science* (December, 1944), XIII, p. 304.

6. Brown, *l.c.*, p. 61.

7. Panchanan Mitra, *Prehistoric Bits and Crafts of India* (Preliminary Notes), p. 16 †.

when their need came to be felt in the North, with the receding of the last Ice Age and the invasion of the forests. The mesolithic culture, wherein the microliths predominate, can, even on these grounds, be reckoned as a part and parcel of the culture of the Palaeolithic Age—the implements, that are found to be characteristic of the mesolithic culture, being already invented and known in a part of the palaeolithic world. This would also emphasize that the problems, faced by mankind in different parts of the world, during the Palaeolithic Age, were different, and were, therefore, met with differently—a point of view, which must not be forgotten in our studies of the palaeolithic culture of India. But since the Mungi specimen is an isolated phenomenon, and since it is not often recognized as a “pygmy” flake, we shall mostly ignore it while discussing the “microliths” of India.

Dr. Robert Bruce Foote has proved that some of the most important centres of the Palaeolithic industry in India were in the districts of Bellary, Chingleput, Nellore, Cuddapah, North Arcot, Guntur, Tanjore, etc., and in the state of Mysore. These settlements were to be found mainly in the valley of the South Indian rivers like the Palar, the Pennar, the Malaprabha, the Krishna, the Godavari and their tributaries. Other important centres lay further north, in the states of Kathiawar, in Gujarat, Central India, the Central Provinces, Chhota Nagpur, South Bihar, Orissa (especially in the Orissa states of Mayurbhanj, Dhenkanal, Talchar etc.) etc. They represent palaeolithic settlements in the valleys of the Sabarmati, the Narmada, the Brahmani, the Mahanadi and other rivers and their tributaries. It would appear that the implements, gathered by Dr. Foote, belonged mostly to the Chellean-Acheulian types. Again, the “terraces” of some of the rivers like the Ganges, the Narmada etc., bearing such artifacts and belonging to the lower, middle and upper Pleistocene periods, are correlated to the Siwalik strata as follows: “The lower (Pleistocene) coincides with the older alluvium (Bhangar) of the Ganges, Narmada and Tapti. Here the rich Siwalik fauna are still continued to a certain extent and fossils of two types of hippopotami, one allied to a Pliocene Siwalik sub-genus and no less than three types of elephants the *Elephas namadicus*, *Elephas insignis* and *Elephas ganesa*, the latter two being represented in the Siwaliks, are found. In the newer alluvium (Khadar), we can distinguish some fauna still racially distinct from modern ones.”⁸ The Kurnool cave-deposits, of which we shall speak later, are slightly earlier than the Khadar deposits, though

8. P. Mitra, *Prehistory of India*, (1927), p. 72

TABLE III

GEOLOGICAL PERIODS	Sundry Localities	Potwar Area (T=Terrace)	Glacial Correspondence	Fauna (Fossiliferous remains).	Implements
HOLOCENE	"K h a d a r" or newer alluvium deposits.	Silt deposits. (T.)	Post-glacial	Rhinoceros (Extinct), Equus, Hyena erœuta, Sus. Cynocephalus, Viverra.	Late Sohan industry. (Same as below).
UPPER PLEISTOCENE	Cave deposits of Kashmir & stalagmite cave deposits of Billa Surgam	Fluvio-Glacial loessic deposits Gravel (T ₁) Siltal (T ₂) Gravel (T ₃)	Fourth Glaciation. Third Inter-glacial. Third Glaciation.	(namadicus) Elephas antiquus (namadicus) Equus namadicus Hippopotamus namadicus, Ursus namadicus, Rhinoceros (Extinct) Bos namadicus, Sus giganteus, Bubalus Palae-indicus, Cervus, Crocodilus, Giraffe etc.	Acheulian hand-axes; early Sohan flake industry of Clactonian - Levalloisian types Pre-Sohan, big, crude, quartzite flakes, resembling Cromerian ones.
MIDDLE PLEISTOCENE	Bhangar or older alluvium deposits of the Conglomerate (T ₁) Ganges, Jumna and Narmada and Tapti Valleys	Redeposited Boulder-Conglomerate (T ₁) Upper Siwalki Boulder-Conglomerate.	Second Inter-glacial. Second Glaciation	Elephas antiquus (namadicus) Equus namadicus Hippopotamus namadicus, Ursus namadicus, Rhinoceros (Extinct) Bos namadicus, Sus giganteus, Bubalus Palae-indicus, Cervus, Crocodilus, Giraffe etc.	
LOWER PLEISTOCENE	Lower Karezas of Kashmir Malsah - bagh Conglomerate of Kashmir.	Upper Siwalki Punjor Zone. Upper Siwalki Tatrot Zone.	First Inter-glacial. First Glaciation.	Elephas hyssudricus, Elephas planifrons (or El. meridionalis), Rhinoceros, sivalensis, Hexaprotodon sivalensis, Sivatherium gigantium, Hippopotamus, Equus, Sus, Bcs. Cervus, Gharialis, Apes (Semnopithecus etc) etc. ? Mastodon, Stegodon.	
PLIOCENE		Middle Siwalki Sand-rock.		Mastodon, Rhinoceros, Hippopotamus, Semnopithecus. Ceropithecus etc.).	
UPPER MIocene		Lower Siwalki Sand-stone.		Rhinoceros, Mastodon, Dinothereum, Crocodilus, Gharialis, Giraffes, Antelopes, Anthropoid apes (Sivapithecus etc.)	
MIDDLE MIocene					
LOWER MIocene		Bugti hills			
				Anthracotherium Cadurcotherium, Baluchitherium etc.	

later than the lower Pleistocene deposits of Narmada etc."

In all his career, Dr. Foote came across only a single instance of actual cave-habitation of palaeolithic man in India, where he found "a few carved bones and marked teeth of Magdalenian aspect (?)." ¹⁰ While his division of the then known palaeolithic implements into ten categories given by him is to a large extent arbitrary, and, therefore, unscientific, it is clear that besides the bouchers (or the *coup de poing*), there were some other types, known to the palaeolithic inhabitants of South India. The following observations of this great pioneer, however, appear to lay down the basis for further investigations in this direction: "Flake knives were among the tools made and used by the old people, and apparently also true scrapers. If the scraper-like implements were used in the same way as tools of the same shape were used by the neolithic peoples and some of the backward tribes still living, we may infer that the palaeolithic race of men made use of the skins of animals they killed in the chase or in self-defence." ¹¹ Dr. Foote also believed that the palaeolithic men of South India had left relics of their artistic taste in "the rock bruising on the face of the trap dyke on the scarps of Kupgal (or Kuppal) hill in Bellary district." ¹² These included "rough sketches of human beings in groups and singly and many figures of birds and beasts of various degrees of merit." ¹³

Working under a hypothesis, originally propounded by Sir John Evans that "a great gap, or hiatus, did really occur in Western Europe" between the latest appearance of the palaeolithic culture and the earliest of the neolithic one, Dr. R. Bruce Foote¹⁴ put forth the theory that the same was the case also in India: ". . . it appears to me that the real existence of a similar gap is strongly supported by the geological features shown in the annexed section of the right bank of the Sabarmati river in Gujarat. Typical palaeoliths were deposited by flood action in a bed of coarse shingle, over which more than 50 feet of other alluvial materials were piled by the action of the river, and over this again nearly 200 feet in thickness of blown loess was heaped by the westerly winds from the Gulf

9. *Ibid.*, p. 72 and p. 78.

10. Foote, *IPPS.I. Notes*, p. 11.

11. *Ibid.*, pp. 10-11.

12. *Ibid.*, p. 180.

13. *Ibid.*, pp. 87-88.

14. *Ibid.*, p. 15. Elsewhere he says that "nothing can be clearer than the existence of a great break in time between the Palaeolithic and the Neolithic periods in South India." (*JASB.*, LVI, 1887, p. 250 f.).

of Cambay and the Rann of Cutch. It was on the top of the high level loess which occurs in the shape of small plateaus at intervals capping the high alluvial banks or on the top of isolated loess hills away from the river that the neolithic people left the earliest traces of their advent in the shape of flake-knives and wedges, with scrapers, strike-a-lights and a variety of interesting selected stones." A number of eminent scholars, including Mr. J. Coggin Brown,¹⁵ Dr. Vincent A. Smith,¹⁶ Mr. N. G. Majumdar,¹⁷ Dr. Sankalia^{17a} etc., have accepted or followed this *hiatus* theory, without heeding to note that its foundation, or the European prototype of this theory, was totally demolished by subsequent researches.

As seen above, in the Continent and elsewhere, it is often possible to trace the continuity of human civilization throughout the different stages of the Palaeolithic and Mesolithic Ages down to the Neolithic Age. Eminent authorities like Prof. V. Gordon Childe have observed: "The neolithic arts were not suddenly introduced complete and fully developed into an empty continent as our forefathers imagined. A whole series of intermediate stages have come to light to fill the old hiatus."¹⁸ On the other hand, for want of a thorough-going study, it was hardly possible in India till recent times to demonstrate the continuity of human occupation, in the face of the afore-quoted remarks of the great pioneer in Indian prehistory. It can easily be granted that the 250 feet deposit that intervened between the stratum containing the Chello-Acheulian implements and that containing the neolithic implements, was actually devoid of implements of the intervening periods, that constituted the Middle Palaeolithic, Upper Palaeolithic and Mesolithic epochs, at the particular site examined by Dr. Foote; even though it is doubtful if his search was such a thorough-going operation as to justify so important a conclusion. But it is more likely that at least some of the palaeolithic implements, that he himself collected in other districts, belonged to these intervening epochs, without their collector being aware of this.

Before proceeding further with the theme of refutation of the *hiatus* theory, we may note certain important observations made by Dr. Robert Bruce Foote as regards the materials, used by the palaeolithic men, and the effect that such materials had in the distribution of the palaeolithic settlements: "The vast majority of the

15. Brown, p. 3

16. IGI (1909), II, p. 60 f

17. *Revealing India's Past* (London, 1939), p. 94.

17a. Dr. Sankalia's press-statement on the Narmada valley excavations.

18. Childe, DEC, p. 1.

palaeoliths were made of quartzite, which was by far the most suitable material occurring in South India. For, not only was it the most suitable, but on the East Coast north of the valley of the Palar river, it was far and away the most plentiful material: In the centre of the Deccan plateau near Bellary and thence southward into Mysore, a region where true quartzite is absent or very rare, the old people made their weapons of jaspery haematite quartzite, the next best material procurable; Quartz was very rarely used by the palaeolithic people (in South India) I met with very few examples of it, but Dr. W. T. Blanford met with a good number at Ragundla in the Godavari Valley. In Central India, the old people (— the palaeolithic men) made their weapons out of quartzite as a rule, but typical palaeoliths have also been found in the Rewah country made of porcellanite, which is found in that region and furnishes a by no means unsuitable material....”¹⁹

Thus, it would be found that where one type of rock was not available, the palaeolithic man used another, that was not far removed from it, for fashioning his implements. Such a substitution must have, however, been not without effect, on the distribution or density of the population: “The localization of all the races has also been influenced in some measure by the distribution of the rock yielding materials suitable for their respective implements. Thus, there are far more numerous traces of the palaeolithic race (correctly, palaeolithic man) around the great quartzite yielding groups of hills forming the Cuddapah series of the Indian geologists and the great Quartzite shingle conglomerates of the Upper Gondwana system in the Chingleput (Madras), North Arcot and Nellore districts, than in other regions. In diminishing quantities traces of palaeolithic man are found to the northward of the Kistna (Krishna) valley, where quartzite becomes a much less common rock. So also to the southward of the Palar valley, where quartzite becomes a rare material; to the westward on the Deccan plateau where the stone chippers finding no quartzite in the Bellary district had recourse to the handed jasper haematite rocks (or the Dharwar system); and further north in the valley of the Kistna (Krishna), where recourse was had in one instance to hard siliceous limestone.”²⁰

Another aspect of the same problem that strikes a student of the Palaeolithic Age in India is that the palaeoliths were often found in the laterite gravels as in the following districts: Tanjore, Trichi-

19. Foote, *IPP.1, Votes*, pp. 8-9.
20. *Ibid.* p. 36

nopoly, Cuddapah, Chingleput, North Arcot, Nellore, Krishna and Guntur districts. Both these aspects have been incidentally alluded to by Dr. V. D. Krishnaswami in his "Prehistoric man round Madras": "The chief reason for Palaeolithic man's activity in this area (around Madras) is the presence of quartzite of fine quality in abundant quantity, derived mainly from the Alicoor-Satyavedu boulder conglomerate of the Jurassic period. It is obtainable handily in the valley walls and in the huge masses of gravels apparently brought in during a high pluvial period on the laterite peneplain that forms the main morphological feature of the coastal tract. Into this peneplain there has been carved a big valley by a mighty river that must have flowed here The gravel deposits of that mighty river which are now clearly grouped as Pleistocene, give opportunities for the study of the activities of Palaeolithic man which so far are unrivalled elsewhere."²¹

It is long since that Mr. A. C. Logan wrote that the Indian Museum at Calcutta "contains a number of stones of shapes graduating from palaeolithic to something like neolithic from various localities in North India."²² Prof. Panchanan Mitra has laid stress on the typological studies of the Indian palaeoliths and stated that, in the light of the elucidation of the typological characteristics of the implements of different periods of the Old Stone Age, the Middle Stone Age, and the New Stone Age, given by Prof. Schmidt, Prof. Sollas, and others, "a classification of the Palaeoliths in the Indian Museum all huddled together under one heading would not have been impossible."²³ He also observes that from the artifacts found, for instance, in the Sinjai-Binjai valley, it would appear that it was "inhabited by prehistoric peoples from almost the earliest times to the dawn of the Neolithic Age; and several stages could be easily detected from the specimens with Mr. Anderson."²⁴ In his Prehistoric India, he put forward a tentative classification of these and other implements, on the basis of typological sequence that is witnessed in Europe. Another important attempt was made by Prof. H. C. Das Gupta, who utilized the evidence of the associated fauna from the fossiliferous beds of the Siwaliks, in order to elucidate the typological sequence.²⁵

Lt.-Col. K. R. U. Todd made a similar attempt on a limited

21. *Indian Academy of Sciences* (Madras Meeting, 1938), p. 87.

22. Logan, *Old Chipped Stones of India* (1906).

23. P. Mitra, *Prehistoric Arts and Crafts of India* (Preliminary Notes), p. 19.

24. *Ibid.*, p. 17.

25. *Jour. of Dept. of Science*, (Calcutta Univ.), VI (1923).

scale, with reference to the implements found in a quarry, about 100 ft. above the sea level near Kandivli (about a score of miles from Bombay). Implements of the Lower, Middle and Upper Palaeolithic Ages have been found here, while the surface finds included microliths. Here in the "lower clay deposits", the palaeolithic man has left late Acheulian and Clactonian implements, including hand-axes and cleavers. Flake implements are also found in this layer, and they appear to have become more and more popular with the passage of time. In the "middle clay deposits" are found hand-axes, scrapers, blades etc., while in the superimposing upper gravels was found *Equus namadicus*' tooth. In the upper clay deposits", with which the upper bed of gravels is overlaid, he also came across blades and burins of different types. This industry is found superimposed with microlithic industry, which, according to Todd, was similar to that found at Marve, where, however, it is associated with pottery.²⁶ Lt-Col. Todd found another centre of palaeolithic industry at Borivali, not far from Kandivli, and of microlithic industry in the caves at Padan, also not far from the same place.

The efforts of numerous scholars have contributed to the recognition of the Chello-Acheulian implements distributed over various parts of India, including those of the lower gravels of the Narmada, the laterite beds of South Indian rivers etc. It is long since scholars have recognized among the prehistoric Indian implements chert flakes of Mousterian types, elongated "laurel-leaf" blades of Solutrean types, Capsian and Azilo-Tardenoisian industries at Chakradharpur, microlithic industry of the Azilo-Tardenoisian variety of the Jubbulpore (Jabalpur) and Banda districts, Magdalenian industry of blades and bone implements from the famous Billa Surgam caves in the Kurnool District etc.

Before proceeding further with this topic of how the *hiatus* theory was gradually being exploded by the efforts of different scholars, before the time of the Yale-Cambridge Expedition of Prof. de Terra and others, we shall deal with the Billa Surgam caves (near Banaganapalli, Kurnool District), which are the only noteworthy fossiliferous caves found in India. These caves were explored by Capt. Newbold, Dr. R. Bruce Foote and his son Lt-Col.

26. Intervening the clay deposits of the three periods, there are gravel deposits, the lower gravel containing implements similar to those found in the lowest clay deposit, and the upper gravel containing ones, similar to those found in the uppermost clay deposit. Vide *Proceedings of the Prehistoric Society of East Anglia*, VII (1932), p. 35 f. *Journal of the Anthropol. Inst. of Great Britain and Ireland*, LXIX, (1939), p. 257 f.

R. A. Foote, who discovered under the stalagmite deposits of these caves fossil bones of a large number of animals, including mammals, birds, reptiles, amphibia and molluscs. These included *Semnopithecus*, *Cynocephalus*, *Hyaena Crocuta*, *Viverra Equus asinus* (?), *Rhinoceros Etruscus* (?), *Manis gigantea* etc. Some of these supply links between the tertiary Siwalik fauna, on the one hand, and the existing African fauna, on the other. Mr. Lydekker, who studied this fauna, opined that "the comparatively large number of species either totally extinct, or which are not found in India, renders it probable that the age of a considerable part of the Karnul (or Kurnool) cave deposits is not newer than the Pleistocene; and the fauna as being certainly more recent than that of the Narmada beds, may be provisionally assigned to the latter part of that period."²⁷ Prof. Panchanan Mitra observes that the majority of these animals must have "formed a part of the diet of these primitive inhabitants."²⁸ He adds: "The lion, the leopard, the tiger, the hyena, the bear, the big monkeys, were creatures with whom they had to deal."²⁹ A couple of hundred bone implements, that were found here included, according to him awls, many kinds of arrow-heads, small daggers, scrapers, chisels, axe-heads etc., and it was with the aid of these that he faced his foes. Dr. R. B. Foote had before him the evidence of this and other sites, when he concluded that the "palaeolithic man in Peninsular India had even more enemies to contend against (than his contemporaries of Europe)..... The principal foes to be dreaded were (1) the tiger (*Felis tigris*) that became a man-eater; (2) the lion (*Felis leo*) in Kathiawar and further to the north; (3) the leopard, or panther (*F. pardus*); (4) the cheetah or hunting leopard (*Cynaelurus jubatus*); (5) the fishing cat (*F. viverrina*); (6) wolf (*Canis pallipes*); (7) jackal (*Canis aureus*); (8) wild dogs (*Cyon dukhunensis*); (9) hyena (*H. striata*); (10) common black bear (*Melursus ursinus*). Leaving the carnivora we must mention, (11) the elephant (*Elephas indicus*), sometimes aggressive, (12) *Rhinoceros unicornis*, generally aggressive, and (13) *Sus cristatus*, not always friendly to man. Deer, antelopes and gazelles of many genera were congeners of men and from their timidity most absolutely harmless, but useful as affording much food...."³⁰

As to the ideological development of the palaeolithic South

²⁷ *Palaontologia Indica*, Ser., X, p. 23 f. (1886), R. B. Foote, *IPP.J. Notes*, p. 118 f.

²⁸ *Prehistoric India*

²⁹ *Ibid*

³⁰ Foote, *IPP.J. Notes*, p. 177.

Indian, Prof. V. Rangacharya informs us that "it has been suggested that the Karnool caves were associated with certain religious rites and that they were resorted to by a race who were hunters of the scalps of men as well as of animals, for not a single skull has been found among the bones discovered there. "With the exception of two or three tolerably perfect skulls of bats which lived in the cave, no entire crania or large fragments of crania were found." The presence of cinder in the caves, the absence of skulls and the fact that the human bone is apparently smashed have given rise to the theory that the cave men must have had some kind of magical, religious rites in which human sacrifices to a pristine cave deity (as among the later Meriah) played a prominent part."³¹ It may also be noted that the perforated pendants of the teeth of beasts, found in this cave, are, perhaps, the only known ornaments of the Palaeolithic Age in India. Lastly, we learn from the late Rao Bahadur K. N. Dikshit that further exploration of these caves and the surrounding regions proved that they "do not offer much further scope for extended operations", but that other sites in the neighbouring districts do.

To proceed with the *hiatus* problem. Prof. M. C. Burkitt and Mr L. A. Cammiade have recently sought to prove that a remarkable affinity exists between various implements, belonging to the Palaeolithic Age (especially to the Lower Palaeolithic Age), that are found in South India, and similar ones that are found in South Africa. Prof. Burkitt, one of the foremost authorities on the Stone Age culture in modern times, had also specialized in the Stone Age implements of South Africa,³² and he came to the help of Mr. Cammiade, who had gathered large quantities of prehistoric implements from various localities in South India and the Deccan; and these two scholars have together elucidated the sequence of these finds from a typological study, in a number of articles. They have also studied the implements that were found by Mr. Cammiade from the Nalla-malai range, in the district of Kurnool, not far from the Billa Surgam caves. Here, in the exposed section of this hill at Nandikanama Pass, chronological sequence was studied in relation to stratigraphy. The implements gathered here ranged probably from the Lower Palaeolithic to the Mesolithic age:

- 1) Core industry: comprising hand-axes and cleavers, and assignable to the Acheulian period.
- 2) Flake industry: of about the same period.

³¹ *History of Pre-Musalmman India*, Vol. I *Prehistoric India*, p. 57 f.

³² *South Africa's Past in Stone and Paint*, (1928).

3) Blade and burin industry: comprising blades, burins, end-scrapers etc., closely connected with the following:

4) Microlithic industry: comprising crescents, triangles etc.

Drawing attention to various parallelisms, that are found to exist between the South Indian types and those of Africa, Prof. Burkitt and Mr. Cammiade observe: "It would seem, then, that whereas industries of Upper Palaeolithic type, and probably by folk of Upper Palaeolithic stock, occur in South Africa, are common in North and East Africa, and are found as far north-east as Transjordania, they are distinctly rare in southernmost India, and we seem to be on the periphery of the Upper Palaeolithic civilization.... Throughout this article, the reader will have noticed that all the series of industries mentioned have exact counterparts in Africa, especially in South Africa. It becomes obvious that close connection existed in those days between the two areas."³³

The famous Yale-Cambridge Universities' Expedition of 1935, undertaken by Prof. Hellmut de Terra, Prof. T. T. Paterson, Dr. P. Theilhard de Chardin etc. studied problems connected with glaciation in Kashmir.³⁴ Prof. de Terra surveyed the Potwar plateau, stretching between the Indus and the Jhelum, together with adjacent territory from Kashmir valley to the Pir Panjal range, and from Poonch to the Salt Range. De Terra has sought to prove the existence of various Ice Ages in north-western India corresponding to those of the Alpine regions, with a similar correspondence of palaeontological remains. From the Table No. III, given above, the correspondence of the first and second Ice Ages, together with the intervening first interpluvial, to the three geological stages in the Upper Siwaliks viz, Tatrot, Pinjor, and Boulder-Conglomerate, will be clear. With regard to the third and fourth glacial epochs, Prof. de Terra shows them to be contemporary with certain "terrace" formations witnessed in the major river valleys of Kashmir and with the Upper Karewas of the same province. In the Lower Karewas were found the remains of *Elephas hysudricus*, while in the Pinjor zone were unearthed those of a similar elephant. The fauna of the Upper Siwalik Boulder-Conglomerate includes *Elephas namadicus*, whereas the earlier layers have yielded the remains of the primitive elephant *Stegodon*. In the second and subsequent

33. *Antiquity*, IV (1930), pp. 338-339

34. *Science*, LXVI, p. 497f., LXXXIII, p. 233f., *Nature* CXVII, p. 680f.; CXLI, p. 275, *Early Man*, (1937), p. 257f. *Studies in the Ice Age in India and associated Human Cultures* (Carnegie Inst. of Washington, Pub. No. 493, 1939).

"Terraces" were found bones of horse, bison, camel, wolf and other animals.

In the Upper Siwalik Boulder-Conglomerate zone were also found the most primitive artifacts, found in India, styled by Prof. de Terra as the "pre-Sohan" industry. This was found in the Potwar region, and consisted mainly of large flakes, that resemble the eoliths from the Cromer bed (Norfolk, England). The chief stations of this industry, noticed by this expedition, were near Adiala and Chauntra (on the Sohan), Chaomukh, Kallar and Malakpur (in the Jhelum valley) and Jammu (on the Tawi, a tributary of the Chenab).

On the surface of the Boulder-Conglomerate and in Terrace No. 1 (=T₁) in the valley of the Sohan, and in that of the Indus (in the region between Attock and her junction with the Sohan), Prof. de Terra found an important industry, named by him "the Early Sohan Industry."³⁵ This consisted of "flat-based" and "rounded" pebble tools, flakes and cores, the last assignable to the Chello-Acheulian types. The pebble tools and cores are found to develop into discoid forms, similar to those of the Clactonian and Levalloisian implements. The chief find-spots of this industry, made known by the de Terra Expedition, are Adiala, Chauntra, Khaslakalan, Injra, Khushalgarh, Makhad, etc.

In Terrace No. 2 (= T₂), Prof. de Terra found pebble and core tools of numerous varieties; but here the flakes and blades appear to have been more popular in this industry, called by Prof. de Terra "the Late Sohan Industry". The discoid cores and elongated flakes betray a Levalloisean and Clactonian technique. This industry is found over a much wider area than the "Early Sohan Industry", and is known from the Salt range to the Simla hills and from Poonch to Rhotas.

In 1932, Lt-Col. K. R. U. Todd found near Pindi Gheb some pebble tools and discoidal cores, that remind us of this "Late Sohan Industry", and may, therefore, be regarded as contemporary with, or later than that industry. Both these early and late Sohan industries were found also in the Narmada basal conglomerate and gravels. In 1942, Dr. A. Aiyappan found at Sawerpuram a discoid core of jasper, which he characterises as "typologically the earliest artifact found in the Tinnevally District", and as belonging to the late Sohan (or Soan) type. A much smaller, but a more developed core of the same discoid shape, found by him at the same place

35. Dr. H. de Terra, *Studies in the Ice Age in India and associated Human Cultures*. (Carnegie Institution of Washington) (1930)

evidently belongs to a later date. This, together with some other artifacts of the same place (e.g. Nos. 33, 52 etc. of his collection) may be supposed to represent mesolithic survivals in that locality.³⁶ Similar discoid cores and also discoid flakes have been found at or near Kupgal (or Kapgallu), and at other sites in the Bellary district and elsewhere by Dr. Foote, Dr. B. Subba Rao, and others.³⁷ These have been classified by Dr. Foote among neolithic implements, and have been often described by him as "circular scrapers".

Corresponding to the "terrace system," in the Siwaliks, there is a system of terraces in the Pleistocene deposits of South India, to which Prof. Paterson first drew attention, and which were examined in detail in relation to archaeological sequence of the artifacts, contained in them, by Dr. V. D. Krishnaswami. The terraces, they studied belong to the Korttalaiyar valley (or the valley of the Old Palar), which was examined chiefly in two areas, one including Erumaivettupalaiyam, Attirampakkam, Nambakkam and other sites, the other including Varadamadurai boulder conglomerate bed. Dr. Krishnaswami was able to establish the following sequence of palaeolithic implements in Southern India on the basis of this stratigraphical study:³⁸

Terrace	Geological Characteristics	Typology of Artifacts
T ₃	Loamy	Upper Palaeolithic
T ₂	Laterite gravels	Late Acheulian, Micoquian, and Levalloisian.
T ₁	Loamy, sandy soil.	Early Acheulian.
T ₀	Laterite	Abbevillo-Acheulian.

Microliths or "Pygmy" Implements

It is an unfortunate fact in the history of Indian archaeology that with the exception of a few praiseworthy attempts, scholars have not paid adequate attention to the systematization of prehistoric artifacts, to their typology and stratification, to their utility and even nomenclature. The result is that the study of the pre-history of India is thereby rendered more complicated than it should have been in respect of chronology, typology etc. Many problems have defied solution, just because of this lack of systematization: while numerous others probably connote to the posterity a signifi-

36. *Spolia Zeylanica*, XXIV, p. 145.

37. Foote, *IPP.I, Catalogue*, p. 51; etc. *Bulletin of the Deccan College Research Institute*, (1947), pp. 210, 222 etc. See also other more recent publications of Dr. Subba Rao, published by the same Institute.

cance, that they might not have possessed (indeed, they were not intended to convey). Had the original discoverers or interpreters of a number of finds been careful to supply us with all the relevant factual information, instead of indulging in supplying us with brief, subjective descriptions of the artifacts, without an attempt at clarification of the nomenclature used by them, perhaps, such a situation would have been averted. One of the problems, thus rendered complicated by the inadequacy of chronological and other data, relates to the so-called "pygmy flints" or "microliths", which, as in Europe, appear to have extended over a great length of time, and about which our future excavators and explorers must be specially on the guard.

One of the most noteworthy representatives of this class of implements is the famous agate flake of Mungi, found by Mr. Wynne in the gravels of Godavari; and this, as we have seen, probably belongs to the Lower Palaeolithic Age. In 1924, Mr. L. A. Cammiade described different types of pygmy flints, found by him in the lower-Godavari. These implements included flakes of various sorts, e.g. edged, or pointed, or chisel-shaped ones etc.³⁹ He also notes that at some sites, these implements were associated with some kinds of pottery including funerary urns, and a small, polished, shoulder-ed celt. These flakes, as the associated finds would indicate, evidently belong to a much later date than the Mungi flake. If the Mungi flake was discovered in the year 1865, and was published the following year, this latter year also witnessed the publication of some "extremely small" agate flakes, and also some cores, found by W. T. Blanford in Central India.⁴⁰ The pygmy implements, found by Dr. Foote in the Banda district, C.P., and in Vindhyan regions, have been characterized by Prof. Sollas as being of the Azilian type. In the valley of the river Watrak (ancient Vartraghni) in the Baroda State, Dr. Foote came across some microliths, some of which he described as "pygmy flakes of chert" and "a pygmy flake of agate", in his Notes.⁴¹ Similar other flakes of chalcedony and other materials were found by him on "the surface of the old alluvium of the Orsang river, north of Bahadurpur, Baroda State;" and these have been classified by him as neolithic implements.⁴² His efforts in Gujarat and Kathia-

38. V. D. Krishnaswami, *Prehistoric Man around Madras* (Indian Academy of Sciences, Madras Meeting, 1938), p. 86f. *Ancient India*, No. 3, p. 32f.

39. *Man in India*, IV (1924), p. 83f. : *Antiquity*, IV (1930), p. 327f.

40. *Proceedings, Asiatic Society of Bengal* (1866), p. 230f.

41. Foote, *IPPA: Notes*, p. 140.

42. Foote, *IPPA: Catalogue*, p. 191.

war were seconded by those of Dr. H. D. Sankalia and others during the last decade or so, in a number of successive expeditions undertaken by them in the valley of the Sabarmati (ancient Svabhramati), the Orsang, the Watrak (Vartraghni), Narmada etc. According to Dr. Sankalia, "The microliths from Gujarat proper are made out of agate, carnelian, chert, jasper, quartz (milky, at times limpid or crystal); less frequently of bloodstone, green-stone and rarely (so far from one site only) of amazon stone."⁴³ Dr. Foote also describes a large number of pygmy flakes of agate, carnelian and other materials, triangular, arrowhead-like or chisel-like in shape, found by him on a "low hill, west of Mugati, Adoni taluq," Bellary district.⁴⁴ Similar flakes of chert, agate or carnelian were found by him at Nagaladinne (Adoni taluq), at "the Cindar camp at Lingadahalli" and other places in the same district.⁴⁵ According to Dr. V. D. Krishnaswami, Dr. Foote made (?) a part of his collection of microliths "now in the Madras Museum in the districts of Anantpur, Kurnool and Cuddapah—this consisting for the most part of blades, scrapers, cores of agate, chert, chalcedony and of vein quartz."⁴⁶ Most of these have been reckoned by him as neolithic artifacts. Mr. J. Coggins Brown includes among neolithic implements a number of pygmy flakes of various geometrical shapes, especially crescent-shaped, made of chert, agate or chalcedony, found in the Bellary district, and at Pratabganj, U.P., and other places in northern India.⁴⁷

Besides Wynne, R. Bruce Foote and J. Coggins Brown, we must include among the early discoverers of the microliths of India, Mr. A. C. Carley, who "found some small flakes, etc., of agate, jasper, and chert, near Sohagi Ghat on the northern scarp of the Vindhya, to the south of the Allahabad District (about 30 miles SSW from Allahabad)"⁴⁸—evidently at a site that is not far from Kausambi (modern Kosam). It is this scholar, who, followed by Dr. Vincent Smith, described for us the shapes of these artifacts, and who supplemented Dr. Foote's observations about South India with his own about North India. At the above-mentioned site near Allahabad, he obtained "a particularly fine crescent-shaped object, made of white creamy chalcedonic agate,

43 *The Glory that was Gujurat* (1943), Pt. I, p. 23.

44 Foote, *IPPL Catalogue*, p. 91.

45 Ibid., p. 85, 93; etc. Study the plates in Foote, *IPPL Notes* here.

46 Krishnaswami *Prehistoric Man around Madras* (Indian Academy of Sciences, Madras Meeting, 1938), p. 93.

47 Brown, *Catalogue*, pl. viii, also p. 72.

48 *I.A.*, XXXV (1906), p. 185.

and of the same type-form as the small crescent-shaped implements which some years afterwards I found in such numbers in caves and rock-shelters on the Vindhya Hills . . . In Rajputana, I found some worked flakes of quartzite and one of basalt, and numerous small flakes of carnelian and agate."⁴⁹ He, then, adds: "But it was in the year 1880 and 1881 that my own principal . . . discoveries were made of great numbers of the beautiful little Indian stone implements of the peculiar types of the crescent, triangular, scalene, and rhomboidal forms, and others with one end more or less elongated to a point, . . . in the caves and under rock-shelters in the Vindhya Hills, in Baghelkhand, to the south of the Mirzapur District, and in the northerly parts of Riwa (or Rewa). But some few also I obtained in parts of the Kaimur range further south . . . Some few lay exposed here and there on the surface but the majority were found in the soil, by digging for them."⁵⁰ In some cases, these implements were, so to speak, overlaid by "fragments of very rude pottery".⁵¹ The smallest of the crescent-shaped or rhomboidal or trapezoidal implements found in the Vindhyan locality were as small as one-half inch in length. Similar shapes and even smaller sizes were to be found in the microliths, found by Mr. Gatty in Scunthorpe in Lincolnshire, England. After comparing the finds of these two localities, Mr. Gatty points out their occurrence in other regions, e.g., Palestine, Egypt, North Africa, South Spain, Belgium, etc.; and Dr. Vincent Smith, who draws attention to finds of Carlisle and Gatty, points out their occurrence in the Crimea and at Sinai, in the valleys of the Meuse, the Dordogne⁵² etc.

Lastly, in 1941-42, a large number of microliths were unearthed by Dr. H. D. Sankalia and others, at Langhnaj (near Mehsana, Baroda State), Hirpura (about 15 miles from Visnagar, Baroda State), and other localities in the valleys of the Sabarmati and her tributaries including Watrak⁵³—following up, of course, the clues supplied by Dr. Foote. Associated with these implements were a few human and animal remains in a semi-fossilized state, which make it probable that they belonged to a pre-neolithic age—palaeolithic or mesolithic, it is not certain. At Hirpura, they

49. Ibid.

50. Ibid., pp. 185-186

51. Ibid., p. 187.

52. Ibid., p. 188f.

53. Sankalia, *Investigations into Pre-historic Archaeology of Gujarat* (Baroda, 1942). Recently Dr. Sankalia has found microlithic industry in a number of localities in the valley of the Narmada, including Maheswar or Mahishmati

were, according to Dr. Sankalia, found sometimes associated with some palaeoliths. Similarly both microliths and palaeolithic celts etc., were found at Wasad. But the exact determination of the age of these finds is rendered doubtful by the fact that many of them are said to be surface-finds. That even those dug out by excavations were found embedded often in the same strata, that yielded two types of earthen ware, red and black, would, on the other hand, show that these cannot be all confidently assigned to the Palaeolithic Age or the Mesolithic Age in India, but that they may be late survivals of Neolithic culture, like similar "pygmy implements", found in a number of localities, especially in Central India and Southern India. Indeed, for want of definite data, the following statement made by Mr. N. G. Majumdar about 15 years ago, though it can be now improved in the light of the new discoveries of the Continent, Africa and Western Asia, may be said to represent substantially a true picture about a number of our finds: "The so-called 'pygmy flints', consisting of small core and flakes, which are frequently made of chert, agate, jasper, chalcedony, carnelian etc., often show beautiful tints, are supposed to belong to the Neolithic Age."⁵⁴

The excavations carried out by Dr. M. H. Krishnan at Chandravalli (near Chitaldrug) yielded, besides the "pygmy implements" of chert, chalcedony etc., finely ground neolithic celts, crystal arrow-heads, some fishing hooks of copper, and (probably in upper layers) even some "iron slag pieces"—despite which the excavator is willing to relegate his finds to as early as the pre-Neolithic (or Mesolithic) Age.⁵⁵ At Maski too, the "microliths" and chert flakes were found in the same strata as some isolated copper objects, and some iron pieces. While these excavations can hardly be said to have been carried out strictly scientifically according to the modern standards, they have been responsible for the following conclusion drawn by the late Rao Bahadur K. N. Dikshit: "Within the neolithic period itself, much material is now accumulated concerning the microlithic phase, which has been found in certain places (e.g., Brahmagiri in Mysore State and Kallur in Hyderabad) to precede the regular neolithic, while in other areas such as the caves in the Mahadeva Hills and in the loess mounds of Gujarat, it occurs by itself."⁵⁶ Evidently, he here regards the microlithic industry as a phase of the culture of the

54. *Revealing India's Past*, (1935) p. 95.

55. *In. Rep. Mysore Arch. Dept.* (1930). See below chapter XIX.

56. *Bharata-Kaumudi* p. 23rd ("Some Problems in Indian Archaeology")

Neolithic Age, which he, however, wishes to distinguish from the later fully developed (which he would term "regular") neolithic culture, in which ground and polished neolithic implements had come in vogue. Whatever the suggestion in this statement of the late Rao Bahadur, we on our part are inclined to think that most of these South Indian "microliths" or "pygmy implements", so far unearthed, do not belong to the pre-Neolithic or Mesolithic Age. Further trial excavations at Brahmagiri and also at other sites in the Chitaldrug District have yielded a microlithic industry. Here are found, microliths, made of jasper, agate, crystal and other materials, in association with hand-made pottery, generally plain, but occasionally incised or painted. These pygmy implements appear to have been displaced by those of iron, the introduction of which probably helped the development of the megalithic culture in South India.⁵⁷ Thus, it would appear that the microliths of most of these localities in central and southern India should be generally relegated to the Neolithic and Copper and Bronze Ages, rather than to the pre-Neolithic Age, properly called the Mesolithic Age. In Northern India also some sites like Pampur (ancient Padmapura, 7 miles south-east of Srinagar), Sambur (4 miles south of Pampur) etc., have yielded microlithic and flake industry in association with pottery. In the vicinity of Uchhali (near Naushahra, Shahpur District), some "hand-made pottery, believed to be neolithic," was found associated with stray microliths and human remains.⁵⁸ Thus, what holds true about South Indian microlithic finds also holds good about northern Indian ones.

Microliths and Rock-shelters

There are, indeed, various problems connected with the "pygmy implements", besides those to which Dr. Vincent Smith drew attention. One of the problems, to which he, following Carlyle, drew attention, concerns the occurrence of these implements in caves or rock-shelters. The same association is borne out by the observations of some other scholars, including Lt.-Col. Todd, who found such artifacts in the caves at Padan (near Kandivli)⁵⁹ and Miss Dorothy Deep, who found others in a rock-shelter situate about 2 miles NWN of Pachmarhi.⁶⁰ The caves

57. IHQ., XXIV (1948), p. 15f.; *Ancient India*, No. 4 (1948), p. 181f. No. 6, p. 9. For further study of this culture, read *Ancient India*, No. 6, p. 64f.

58. IHQ., XXIV. (1948), p. 13. *Studies in the Ice Age in India and Associated Human Cultures*, p. 275.

59. Todd, l.c.

60. *Nagpur University Journal* (Dec., 1935), No. 1, p. 28

at Padan contain some engravings on the rocks, and such engravings and even paintings are known to have been associated with such caves and rock-shelters in a number of localities. This furnishes us with another problem, to which we shall have, perhaps, to pay attention in a wider context. We know that the Natufian microlithic culture, that furnished man with some of the earliest known sickles, and that, therefore, may have been contemporary with the earliest neolithic cultures of Egypt and Mesopotamia, is also known to have been associated with the caves of Palestine.^{60a} The Indian microlithic culture, mostly of the Neolithic Age and often associated with caves or rock-shelters, is, therefore, comparable to this West Asiatic culture. In India, the microlithic culture lasted for a considerable time, longer than, perhaps anywhere else. If we take into account the Mungi implement. India may be deemed as one of the earliest centres of this culture, and it appears to have lasted almost up to the beginning of the Iron Age, as is made probable by the recent excavations at a number of sites. The luxuriant growth of the plant and vegetable life, that flourished in over-abundance in the warm climate of the southern countries like India during the Ice Age (when the Continent, the boundless tracts of U.S.S.R. etc., were covered with a sheet of ice), undoubtedly needed repeated pruning and cutting for enabling man to live in those countries. It is but natural to find the microliths (which are in reality teeth of a cutting implement with a wooden shaft), in larger quantities and over a longer time in southern countries like India etc., than in the northern countries of the Continent (excepting the Iberian peninsula).

Lastly, we may note that the skeletal remains, associated with the microlithic implements, unearthed by Dr. Sankalia and others at Langhnaj and other localities, were examined by Dr. Iravati Karve and Dr. G. M. Kurulkar, who, announcing their results have spoken of their "Hamitic Negroid characteristics". According to these scholars, these remains belong to the "people akin to those of the north-east Africa and perhaps to proto-Egyptians".⁶¹ Since these remains were found in a state of calcification, their antiquity is, perhaps, beyond doubt; but the problem that faces us is whether they really belong to the period, corresponding to the Mesolithic Age in Europe. The fact of calcification or fossilization cannot be stressed very much, so as to prove the mesolithic antiquity of

^{60a} Vide supra, p. 161; 168f.; 171f., etc.

⁶¹ *Preliminary Report on the Third Gujarat Prehistoric Expedition.*

the remains, unearthed by the Gujarat expeditions. For, we may point out that in some of skeletal remains, found in the Copper-Bronze Age site of Neru-jo-daro (about 7 miles north-west of Kot-Diji), "the process of fossilization had definitely started" in the opinion of one of the above-mentioned authorities, a great authority in the medical line viz Dr. Kurulkar.⁶² If the skeletal remains at Langhnaj etc., belong to the beginning of the Neolithic Age in India, they become very interesting in more than one way, emphasizing at least a strain of the Hamitic Negroid blood in the indigenous population. Do we not meet here the Proto-Dravidians? Do they not support the theory, propounded by us in *The Mother Goddess*, following Dr. G. Elliot Smith, Dr. F. J. Perry and others, that the knowledge of agriculture and of the civilization dependent upon it was originally spread in ancient oriental agricultural (or neolithic) civilizations by the inhabitants of the Nile Valley?

Microliths and Prehistoric Cave-Paintings

There is another aspect of the microlithic culture in India, that needs be touched upon here and that concerns the earliest cave-paintings in India. That the earliest cave-paintings in Europe belong to the Palaeolithic Age is no argument for us to treat this subject in this chapter, since India possesses no known paintings definitely assignable to the Palaeolithic Age; yet, there is a possibility of some of the earliest of these paintings belonging to the Mesolithic Age, since that some of the microliths belong to that age is not to be definitely denied. Indeed, for the same reason of convenience, for which all the microliths have been treated here, the prehistoric cave-paintings of India can be!

Long ago, Mr. A. C. Carlyle, who was among the first to recognize the Indian "pygmy" implements at various sites, near Sohagi Ghat and elsewhere in the Vindhya range, stated that he had "in the same locality near Sohagi Ghat, already noticed (in 1867-68) some faded paintings in red colour in a recess of a low cliff under some overhanging rocks."⁶³ Elsewhere, in certain caves of the Baghelkhand region, "along with the small implements in the undisturbed soil of the cave-floors, pieces of a heavy red mineral colouring matter called *geru* were frequently found, rubbed down on one or more facets, as if for making paint—this *geru* being evidently a partially decomposed haematite (iron peroxide)."⁶⁴ He

62. *Journal of the University of Bombay*, Vol. IV, pt. 6, p. 4

63. I.A. (1906), XXXV, p. 185

64. *Ibid.*, p. 187.

goes on to add that with this *geru* (Sanskrit "gairika") a number of rock and cave paintings were done, and that they appear to belong to "various ages". "Some of these rude paintings appeared to illustrate in a very stiff and archaic manner scenes in the life of the ancient stone-chippers; others represent animals or hunts of animals by men with bows and arrows, spears and hatchets."⁶⁵ Recently, Major D. H. Gordon, working in the vicinity of Pachmarhi, came across more than a dozen rock-caves and rock-shelters, containing paintings, done in dark, pinkish or brick red; in brown, yellow-brown, or greenish brown; and in other colours. Some of these were associated with microlithic industry, exhibiting triangular, trapezoid, crescent-shaped and other geometrical forms. The paintings themselves present five different "series" or classes, indicating that they extend, perhaps, over a wide period. They depict, *inter alia*, figures of elephants, sambhurs, stags, does, wild boars etc., besides human beings. The latter include hunters, tenders of cattle, women attending upon their lord (?) etc.⁶⁶ The microlithic industry met with in the caves at Padan was also associated with rock-engravings.⁶⁷

In 1910 were discovered some rock-paintings belonging to two large caves in the hills overlooking the village of Singanpur in Raigarh district, a few miles to the east of the point where the Bengal Nagpur Railway meets the river Mand. These caves, 20 to 30 feet deep and about 15 feet wide, were found to contain a few agate flakes, besides hunting scenes etc. Amongst the numerous scenes depicted here, there is one of an encounter, not unaccompanied by casualties, of a group of hunters with a bison and wild boar.⁶⁸ The hunters are masked and are equipped with spears. In another scene, we find an encounter of a bear, that attacks a man while it itself is attacked from behind by another. Some other scenes are supposed to represent ceremonial dancing. Mr. Percy Brown suggests that one of these scenes depicts a waterfall, that is actually not far from the site of the painting. But, perhaps, the best preserved scene is that of the bull or sambhur hunting, wherein the hunters appear to be masked. In one of these drawings, Prof. Panchanan Mitra sees "clear outlines of a Kangaroo", while in another he finds "traces of a mammoth-like

⁶⁵ Ibid

⁶⁶ Gordon, *The Rock Paintings of the Mahadeo Hills* (Indian Art and Letters, Vol. X, p. 35f.)

⁶⁷ Annual Bibliography of Indian Archaeology for 1937, XII, p. 13.

⁶⁸ IBORS (1918), p. 208f., Modern Review, (1924, August), p. 188f.

figure".⁶⁹ To us, the presence of the Kangaroo is not rendered above suspicion by the photograph of that drawing given in Prof. Mitra's work, whereas about the figure of the mammoth-like creature, the learned Professor himself admits the representation being "too fragmentary to allow of any sure assumption."⁷⁰ Mr. Amar Nath Datta speaks among others of a representation of a "gigantic ape-like form" (of the ancient man?) and of "a mermaid" in these paintings, that are generally found "under rock-shelters and at the entrance to the caves" at Singanpur (Raigarh State, C.P.)—which, he informs, lies about three miles away from Naharpali, a B. N. Railway Station.⁷¹ He asserts that "several of the painting(s) at Singanpur seem to frame the shape of a mammoth, (a) kangaroo, and even a reindeer."⁷² Such conclusions, though very tempting, must be treated with great caution, especially in view of the fact that no arguments have been produced by these writers to prove the existence of mammoths and reindeers in the warm climate of India. Mr. Datta draws attention to Prof. Pittard's allusion, in his "Race and History", to "chipped agates" of the Raigarh State—which, in his opinion refer to those of these caves.⁷³ He also points out the existence of megalithic monuments like the dolmens and the stone-circles in neighbouring localities such as Pujaripali, Seraikela etc., and of chert-flakes etc., at Chakradharpur etc.⁷⁴

One of the earliest investigators of the prehistoric cave-paintings in India was Mr. John Cockburn, who came across red haematite drawings in a number of caves in the Kainur range, including those at Ghormangar, Chunadry, Louri, Likhunia etc. In one of these paintings found in the Mirzapur district, he thought, he found in a hunting scene the representation of a two-horned Indian rhinoceros (*Rhinoceros indicus*), tossing up a man. (He points out that this animal once roamed in the ravines of the Ken.⁷⁵) Major Gordon, be it remembered, rightly warns us against jumping to so important a conclusion.⁷⁶ Previous to him, the late Rao

69. Mitra, *Prehistoric Arts and Crafts of India*, p. 31.

70. *Ibid.*

71. Datta, *A Few Prehistoric Relics and the Rock-Paintings of Singanpur*, (1931), p. 11.

72. *Ibid.*, p. 32.

73. *Ibid.*, p. 5.

74. *Ibid.*, pp. 7-8. Read also Prof. Percy Brown's notes on the Singanpur Cave Paintings, in an appendix to Prof. Panchanan Mitra's *Prehistoric India* (1927, University of Calcutta), p. 458f.

75. Proc. ASB. (1883), p. 125f. JASB (1883), I.II, p. 50; JRAS (1891), p. 89f., especially p. 95f.

76. *Indian Art and Letters*, Vol. X, p. 39.

Bahadur K. N. Dikshit, who had personally explored the caves at Mirzapur, following up the indications given by Mr. Cockburn, remarked that he found in these cave scenes of the hunting, not of rhinoceroses but of elephants!

Speaking of the drawings in caves and rock-shelters, Mr. Cockburn states in one place: "Thus I have seen them near Mirzapur and Chunar, at Pabhosa and at Chakrakot," most of which localities appear to have attained some importance in the early historical period of India. He adds: "The best rock-shelters and drawings, in my opinion, are to be found on the southern scarp of the Kymores (Kaimurs), which overhangs the valley of the Sone (Son)."⁷⁷ Further, he states: "Petroglyphs occur everywhere. I have chiefly seen them about Bijayagarh in South Mirzapur: one particularly fine record in perfect preservation was seen by me at Ek Powah Ghat near the gorge of the Ghaghur, near Roberts-ganj in South Mirzapur.... *Words in Asoka characters* (i.e., in the Asokan Brahmi script) are common in many of these caves."⁷⁸ Thus whatever definite indications there are appear to favour, for these drawings and the microliths associated with them, a comparatively late date, approaching the beginning of the recognized early historical period of India.

One of the most interesting rock-paintings, found in the Mirzapur District, contains a vivid representation of the capture of a wild elephant with the aid of a tame one, by men mounted on horseback. Another rock-shelter drawing, found in the vicinity of the Bijaygarh fort, contains a scene of lion-hunt, while a cave on that fort contains records in red ochre, that date from about the fifth to about the eighth century A.D. It is, therefore, likely that many of these rock-drawings and cave-paintings may be plausibly assigned to early historical times. To a similar date may be relegated the rock-paintings in the district of Banda. The chief difficulty about dating such drawings and paintings is the lack of associated remains, with which they can be correlated and on the basis of which the main styles current in various epochs of the ancient Indian history can be differentiated. Secondly, most of them appear to be so primitive in style, that on the whole, the differences noticeable among themselves are not quite marked. Indeed, there are hardly any remarkable differences, noticeable between these ancient drawings and paintings on the one hand, and the rude primitive drawings and paintings of modern barbarous

⁷⁷ JRAS. (1899), p. 93.

⁷⁸ Ibid., p. 94f. (Italics ours.)

or semi-barbarous tribes of India and elsewhere. Thirdly, these drawings etc., being removed in a number of cases from the main centres of contemporary civilization, may not always be looked upon as real representatives of contemporary art, though in such cases, where they are not so removed, they may indeed be such. There is not always the necessary means of knowing whether a particular group of drawings belongs to any centre of political or socio-economic activities, to any tribe, or kingdom or city. For all these reasons, attempts of Major D. H. Gordon and his followers about assigning the rock-paintings etc., in the Mahadeo Hills and elsewhere, on the basis of style, or the colours used in them, or the subject-matter of those paintings etc., though convenient for classification, do not lead us anywhere. His characterization of some of these being early, others late, and so on, is subjective, and, therefore, often liable to be disputed.

We shall wind up the discussion about the prevalence of the rock-drawings and cave-paintings in northern India, by quoting the following observation of Mr. B. B. Lal, Superintendent in charge of the Excavation Branch, Archaeological Survey of India: "Till now four principal centres of these paintings have been detected: (i) the Son valley in Mirzapur District, (ii) Manikpur and its neighbourhood in Banda District—both in the United Provinces; (iii) Singhapur (Singanpur,) and Kabra Pahar in the Raigarh State, and (iv) Hoshangabad and Pachmarhi in the Mahadeo Hills, Central Provinces."^{78a} It is unfortunate that though he pooh-poohs the classification of unassigned palaeolithic implements suggested by some Indian scholars on stylistic grounds, when they can be fairly well ascertained from the finds of other countries, he is so willing to follow Major Gordon in the classification and sequence of these paintings, for which no means of determination exist.

In connection with these paintings in red haematite or red ochre, found in the Vindhyan ranges and the Kaimur hills, the following quotation may be borne in mind: "Red ochre is of wide occurrence in India, especially in Central India and the Central Provinces. In the latter province, the deposits of Jauli, Jubbulpore District, are well known and still exploited. Extensive beds occur in the Kaimur plateau..."⁷⁹ Another interesting fact

^{78a} *Archaeology in India* (1950, New Delhi), pp. 44-45. Also see Mr. M. Ghosh, *Rock paintings and other antiquities of Prehistoric and Later Times*, (*Mem. ASI.*, No. 24, 1932); D. H. Gordon, in *Science and Culture*, V. No. 3, p. 142f, No. 5, p. 260f; No. 6, p. 322f; No. 10, p. 578f, etc.

⁷⁹ Marshall, II, pp. 682-683

is that the poet Kalidasa describes the crossing of the Vindhyan ranges in no less than two places in the *Raghuvamsa*, and that in both these places, he alludes to red ochre (*gairika*) in the opinion of the best commentators.⁸⁰ It is just possible that red ochre was being exploited in these regions even in the days of Kalidasa.

About the beginning of this century, Mr. Fawcett found at Edakal (Wynaad or Wainad) a series of rock-carvings, depicting figures of human beings, animals, objects of daily use, symbols (like the sun-symbol, swastika) etc. "Specimens of worked quartz in small stone-cists have also been met with while numerous stone-cists, presumably containing human remains, occur in the neighbourhood."⁸¹ These carvings may be compared with the prehistoric

' स नर्मदारोधसि भीकराद्रैमसङ्क्षिप्तं रानर्तितनक्तमाले ।
निवेशयामास विलङ्घिताऽवा क्षान्तं रजोधूमरकेतुसैन्यम् ॥ ८२ ॥

...निःशेषविक्षालितधातुनापि वप्रक्रियामृक्षवतस्तटेषु ।
र्नालोधर्वरेखाशबलेन शंभन्दन्तद्वयेनाश्मविकुण्ठितेन ॥ ४५ ॥'

Also *Raghu*, VI. 31-32
' मार्गेषिणी सा कटकान्तरेषु वैन्ध्येषु सेना बहुधा विभिन्ना ।
चकार रेवेव महाविरावा बद्धप्रतिश्रुनित गुहासुखानि ॥ ३१ ॥

स धातुभेदारुण्याननेभ्यः प्रभुः प्रयाणध्वनिमिश्रतूर्यः ।
व्यलङ्घयद्विन्ध्यमुपायनानि.. ॥ ३२ ॥ '

engravings on the rocks of the Kappal (or Kupgal or Kapgallu) hill, now called the 'Peacock Hill', Bellary District⁸² Dr R Bruce Foote characterizes them as "rude hammerings", and describes them as "interesting graffiti, which are really rough sketches of human beings in groups and singly, and many figures of birds and beasts, of various degrees of merit. They cannot be regarded as sculptures, for they are far too little raised to be considered bas reliefs. Rock-bruisings is the best term by which to describe them."⁸³ In one of these drawings, one finds the representations of a "lingam and a crouching bull of a very modern type". Some of these figures "are strangely obscure and quite indescribable".⁸⁴

80 Cf *Raghu*, V 42-44 -

81 JASB (1931), XXVII, p 32, I & XXX (1901), p 409

82 *Indian Quarterly Review* (1892), III, p 147f

83. Foote, *IPPL. Notes*, p 871 . Brown p 72

84 Foote, *IPPL. Notes*, p 89

These features remind us of the obscene representations accompanying the stone and copper records in Maharashtra and Karnataka of the times of the Yadavas, Hoyasalas, Chalukyas etc., rather than of those of prehistoric times. At any rate, they furnish us with enough grounds to look upon them as the prototypes of those late historical representations, and as belonging to the early historical times.

CHAPTER IX

NEOLITHIC AGE

Discovery of Agriculture

As man was perfecting the instruments of destruction of his enemies, for the acquisition of more and more surplus, he began to find ever greater leisure to observe the whole Nature around him. His species multiplied more rapidly with his ability to feed greater numbers, and their cumulative efforts and achievements also increased proportionately. As we have seen above, he had, no doubt, considerable difficulties in the initial period in adapting himself to the new vegetable-dominated environment, that came into being after the passing of the last Ice Age. With the disappearance of his old enemies and the invasion of the forests towards the north, he had to change his antiquated instruments or remodel them to suit the changed needs of the times. He was able to obtain more fuel, if he needed it to warm himself in winter, or more wood, if he wished to build better shelters; but the skins of the beasts of the Ice Age were no longer obtainable. For obtaining this fuel or for cutting wood, he required a different implement than that needed for fighting those beasts. But still, so long as he was unable to solve his perennial problem of obtaining a regular supply of food, especially during winter, he must have been periodically confronted with the questions of "scarcity" and even "famine".

Gradually he learned to depend more and more on all sorts of vegetable products, including fruits, roots, nuts, peas, green vegetables etc., as well as on the milk of some of the domesticated animals. The pastures and forests around him provided for him an ample opportunity to rear animals, that he found to be harmless. Other beasts, like the hyena, the wild boar, the wolf, the fox, the badger etc. were hunted by him to furnish his larder, for which purpose, even the domesticated animals were naturally used whenever necessary. But so long as the process of agriculture was not known, domestication of animals could not also be practised on any extensive scale. During winter, when vegetarian diet was scarce, when even the vegetable products utilized by domesticated animals diminished in quantity, these animals must have been

slaughtered in greater numbers, than in other seasons. But despite this all, so long as man had not obtained that mastery over Nature that the knowledge of agriculture gave him, he had naturally to depend on her vagaries. His material welfare was thus conditioned by the new *milieu*, and his culture could not prosper nor his species increase beyond a certain limit.

In course of time, the man (or more accurately, the woman), living beside the bank of a river or a lake, used to witnessing the vegetable world around him, was confronted with the elementary laws of that world. He noticed, probably with reference to some important useful corn-plant like the emmer-wheat (or *Triticum dicoccum*) that interested him most and that grew in the neighbourhood, that its seeds that fell yearly into the mud, were responsible for the annual rise of crops. Perhaps, some of the seeds that he had gathered for cooking or roasting, had fallen on the ground near about the hut, and here a new crop was seen rising. A conscious attempt could then be made for the application of this knowledge with a view to providing himself and the members of his family with a regular food supply; and thus, the whole process of agriculture was discovered, gradually through plantation and cultivation.

For an archaeologist, the determination of the problems concerning the type of grain first cultivated by man and the country where it was first cultivated, affords an interesting, though not an easy task for investigation. The wheat of the 28-chromosome type, that was the most popular staple food in the ancient countries of the Middle East, in the Mediterranean region and in India, has its proto-type in the wild varieties of the emmer-wheat, that are found to be the native plants of Syria. Some of the earliest sickle-blades are to be found in the Natufian culture, and they are associated with Mesolithic artifacts, so that there is reason to believe that the discovery of agriculture took place somewhere in the vicinity of Palestine. Emmer is, perhaps, the oldest wheat to be cultivated anywhere, and it was certainly the oldest wheat to be cultivated in Egypt, in Asia Minor and other countries of the Mediterranean, in western Europe etc. Towards the east, it is cultivated in parts of the Near East and of India, where in Maharashtra, and some other regions, it is known as 'khapali gahu'. Thus, Syria, where this variety grows wild, would appear to be the geographical centre of the area producing this grain.

But, in an important work, entitled "Studies on the Origin of Cultivated Plants", the great Russian scientist Prof. N. I. Vavilov

has sought to determine the home of the emmer-wheat, the bread-wheat, the barley and other allied plants on the hypothesis that that country, wherein the greatest number of varieties of any particular plant are to be found, must be regarded as the original home of that plant. "He finds the greatest variety of cultivated Emmers on the shores of the Mediterranean, especially in the North African coast lands, and states as special centres Abyssinia, Algeria, and Greece."¹ Since Abyssinia has the largest, he looks upon it as the home of this type of wheat. Now at Badari, one of the most ancient neolithic settlements to be found in Egypt, the grains, found in some of the vessels belonging to the middle pre-dynastic period, included the emmer-wheat and barley.

At another site viz Nemamieh, not far from Badari, the strata of the "sequence dates" 37-44 have yielded the same emmer-wheat. There are no comparable archaeological finds to be found in any other country, of such an ancient date where the exact nature of the grain has been determined. Moreover, as Prof. Harold Peake observes: "This was the only kind of wheat grown in the Mediterranean region until the Roman civilization arose in Italy, and no other kind of wheat was grown in Egypt until a few years before the beginning of the Christian era . . . Berosus, a Chaldaean priest, who wrote a history of Mesopotamia about 275 b.c., stated that Emmer grew wild in the land of the Babylonians between the Tigris and the Euphrates."² On the whole, the archaeological evidence would appear to favour the general conclusions of Prof. Vavilov, who would place its home probably in Abyssinia and "perhaps in Algeria".³

As to barley, that we find associated with wheat in Badari, the same method of determination leads us to the same country viz Abyssinia, as its home. "According to Vavilov the greatest number of varieties of barley are grown in Abyssinia, . . . while another such centre is somewhere in South-Eastern Asia, either in China, Japan, or in the regions adjoining Tibet, such as Nepal."⁴ Thus, it is quite probable that the origin of the agricultural civilization, which appears to have been the basis of the culture of the Neolithic Age, has to be attributed to Egypt rather than to any

¹ Harold Peake, *The Origins of Agriculture*, (London), p. 29, cf. p. 42.

² Ibid., p. 23. Also see succeeding pages, and p. 26f.; 37f.; etc.

³ Ibid., p. 42.

⁴ Ibid., p. 26.

other country^{4a}—a hypothesis on the basis of which mainly our previous work, *The Mother Goddess*, was written.

Be that as it may, the other species of wheat commonly used in the ancient world, is the “Bread Wheat”. Prof. Vavilov “finds the greatest number of cultivated varieties (of this plant) in Eastern Afghanistan, the next largest number in Persia, and the third in Transcaucasia”.⁵ Prof. Ruggles Gates suggests that the “Bread Wheat” originated as a cross of the wild Emmer and the Einkorn, both of which are to be found in wild form in North Syria. May be, it was here that a cross took place, but the contradiction suggested by this argument in respect of Vavilovian hypothesis cannot be easily resolved, and is a problem for the specialists to solve.

This “discovery of agriculture” was a great stride forward in the march of mankind towards progress. It enabled man to possess considerably larger surplus at hand, than was formerly ever possible. He had greater leisure, after harvesting, and this enabled him to fashion his artifacts with a greater polish, out of diverse materials, and for diverse purposes. A distinct change is noticeable in these implements, so as to justify making them a characteristic of a new age. “Hitherto in Europe, practically all stone tools had been made from flint or flinty materials; but now in neolithic times, with the invention of the processes of grinding and polishing, any fine-grained compact rock could be used and could be given an edge both sharp and tough.”⁶ Such implements could not have been fashioned except with the aid of some large surplus at hand; such surplus was made available to man, only by the “discovery of agriculture.” Thus, we find that the beginning of agricultural civilization coincides with the commencement of a new age, the Neolithic Age. One stride led to another, and on account of this double stride, man was enabled to achieve a great advance in a number of other spheres: we find a quickened march of progress. Thus, the discovery of agriculture easily ranks among the foremost discoveries made by mankind; and like all such discoveries, it effected a radical change in the very structure of the society.

Man’s dependence on vegetarian diet became all the more marked with his ability to produce more agricultural surplus.

4a. Cf. Prof. Perry, *The Growth of Civilisation*, p. 20f.:—“The Nile valley would, by means of its perfect cycle, be growing wheat and barley for the Egyptians.”

5. Ibid., p. 30. The earliest archaeological evidence about the ‘Bread Wheat’ comes from Thessaly, the Danube basin, the Kiev region, Anau (in Turkestan), etc.

6. E. B. (14), II, p. 245.

If pastoral life may have in some respects preceded agriculture, domestication of cattle probably became an established fact in the life of many, only after the discovery of agriculture, or at least after learning the process of cultivation. Can we not, therefore, take it that vegetarian diet marks out a 'step in the advancement of human civilization? And if this is a matter of the past, it is also possible to argue for the future that in view of the rapid growth of human population and the simultaneous dwindling of livestock resources, mankind is bound to be faced in the near future with an "acute shortage" of non-vegetarian diet, unless science comes to the aid of the adherents of the latter.

Mother Goddess

Whatever that be, in spite of his "control" over Nature in the field of agriculture, man was mystified at the whole process of the growth and decay of corns. He always looked at the whole Nature as being animated with some mystic power or powers, especially as possessed of an inexplicable, generative or procreative faculty. With the knowledge of agriculture he began to feel the necessity of enlisting all the more the support of those powers, in the agricultural operations he was undertaking. It is with the knowledge of agriculture that the cult of the "Mother Goddess", i.e., "Mother Earth", (already known to him in the Upper Palaeolithic period), became predominant. His whole life depended upon Mother Earth. She had to be propitiated. The same sacred magic, which enabled the Palaeolithic hunter to "obtain" his food—or at least provided him with an incentive to do so—was also responsible for a vast number of rituals, fasts, feasts, festivals etc., connected with the agricultural cult of the Mother Goddess. This magic served as the very basis of the philosophy of sacrifice. It provided him with the same incentive for procuring his food, which was now mainly to be obtained from seasonal agricultural operations. Constant observations of the Sky and its "inmates"—the Sun, the Moon, and the stars—enabled man to understand the seasonal nature of the crops. This knowledge in its turn furnished him with the means to "control" his food, to obtain it in greater quantities, to have more leisure than before, not only for improving his tools, but also for doing his worship of Mother Earth and other divinities, that he took to be the actual forces behind the growth of successful harvests. The fact that everything ultimately appeared to depend on Mother Earth and the (clouded) Sky Father, gave this Divine Pair a unique position in the religion of the neolithic man. Terra-

cotta figurines of the Mother Goddess belonging to the Neolithic Age are to be found in Egypt, Crete, Hissarlik (Troy) etc., and in the "Copper and Bronze Age", we find this cult to be greatly in vogue in Egypt, Crete, Mesopotamia etc.⁷ Incidentally, while in northern India, the earliest figurines of the Mother Goddess are known from the Bronze Age sites of the Indus valley civilization, those of the southern India come from the early Iron Age sites, from the cairns in and around the Nilgiris.⁸

Matriarchy

This predominance of the female in the religion of the Neolithic Age also corresponded to the state of affairs in the newly formed society of those days. (Cf. "Mankind created God in its own image.") The slow and laborious processes in agricultural operations necessitated a continuous watch in the field, and the protection of its crops. This was mainly done by the woman, with the aid of her children, while the man busied himself with hunting, throughout the major portion of the year. Her important role in the economic welfare of the whole "family-unit" of her time, easily gave her a dominating voice in the society, leading to the establishment of the matriarchal clans throughout the ancient world. The origin of these clans as well as the domination of the cult of the Mother Earth may be relegated in all likelihood to the beginning of the Neolithic Age.

The foregoing matter has been put somewhat differently and inaccurately by Prof. Pankratova: "Primitive agriculture, which was carried on chiefly by the woman provided mankind with a more stable economic basis. Gradually, in the course of centuries, primitive people began to revere woman as the symbol of fertility. Realizing the importance of maternity, they also honoured woman as the ancestral Mother. And woman, as the Mother, tiller of the soil, and guardian of the collective life of the group, became head of the primitive matriarchal clan."⁹ In reality, it was this or that form of the Mother Goddess,^{9a} that was worshipped by this or that

7. CAH., I. p. 90

8. Foote, IPPA Notes pp. iii-xix: *Man* XXXVI (1936), p. 184.

9. *A History of the U.S.S.R.*, Pt. I, p. 17. The custom of reckoning the royal descent in the female rather than the male line is to be found in ancient Egypt, Mesopotamia etc. as well as in many early dynasties in South India. This custom is evidently a relic of the Neolithic culture.

9a. Contra Mr. S.A. Dange's *India: From Primitive Communism to Slavery*.

matriarchal clan, and looked upon not only as a clan-divinity (*kula-devata*), but also as an ancestress.

Neolithic civilization is essentially a river civilization. The stable economy, produced by this "discovery of agriculture", resulted in the building of a number of huts (each containing a family-unit), along the banks of the rivers. It is from such groups that villages, towns and cities ultimately sprang up. Huts assumed various forms in various times, from that of the pit-dwellings of the Campignian culture to the elaborate two-storeyed wooden structures of the late Neolithic Age. Neolithic settlements in Europe are often to be found in the form of small clusters of houses from about 10 to 35 in number. One such settlement was found at Skara Brae, in Orkney, where eight separate "houses" were joined together in a unit, which was roofed over allowing a connecting passage. It reveals also how the elements of sewage system were being gradually learnt by the neolithic man.¹⁰

Mutual relations, existing between men and women in the matriarchal clans of such neolithic settlements, are best described in the following description of Ashur Wright, who was a missionary among the Iroquois Senecas, a matriarchal tribe: "As to their family system, when occupying the old long-houses (communistic households comprising several families) it is probable that some one clan predominated, the women taking in husbands, however, from the other clan. . . . Usually, the female portion ruled the house The stores were in common; but woe to the luckless husband or lover, who was too shiftless to do his share of the providing. No matter how many children, or whatever goods he might have in the house, he might at any time be ordered to pick up his blanket and budge; and after such orders, it would not be healthful for him to attempt to disobey. The house would be too hot for him; and . . . he must retreat to his own clan; or, as was often done, go and start a new matrimonial alliance in some other. The women were the great power among the clans, as everywhere else. They did not hesitate, when occasion required 'to knock off the horns', as it was technically called, from the head of a chief, and send him back to the ranks of the warriors."¹¹ In such matriarchal clans, we find certain essential features of the "primitive communistic life" retained in a modified form. As in the earlier days, children clung to their mother rather

10. Childe, P.A., pp.48, 53.

11. Quoted in F. Engel's *The Origin of the Family*. (Calcutta, 1942) pp. 53-54.

than to their father, in the matriarchal clans of the Neolithic Age. Only her position was made more predominant.

Neolithic Implements

Before we turn to other aspects of the neolithic civilization, we shall first acquaint ourselves with some of the implements of this age, which made this civilization possible. Neolithic industry includes amongst its chief implements, the well-ground neolithic axe-head, called "celt", and the so-called "neolithic pick". The former is usually in the form of "a flat blade, approaching an oval in section, with the sides more or less straight, and with one end broader and also sharper than the other."¹² We find considerable variations in the lengths of these celts that may be anything between 2" and 16" long. Prof. Evans divides the neolithic celts into three types: 1) Those that are only chipped carefully, but are not ground or polished; 2) Those that are ground or polished only at the edge; and 3) Those that are ground or polished over the whole surface. Obviously, it is more advisable to class the first of these types either as belonging to the mesolithic culture, or as the survivals thereof. The so-called neolithic pick "consists essentially of a roughly chipped bar of flint and other material, blunted at one end and having a sharp cutting edge at the other."¹³

Among other implements, common in this age, we can recognize various kinds of adzes, chisels, saws, sickles, cores, axe-hammers, choppers, arrow-heads, mace-heads, scrapers, borers (or perforators), harpoons etc. The axe-head was attached to a staff either by means of straps, or by boring a hole into it (the axe-head) and passing the staff through it. The arrow-heads were also lashed to their shafts by straps or strings. A mace-head is often in the form of a ring-stone, with a central hole, through which a wooden shaft was usually passed. "With axe and adze, man's dominion over the forest was assured, and with chisel and saw, his mastery over the timber he had to fell."¹⁴ These were the tools that were useful for him also for building his house etc. Man

12. E. Clodd, *Primitive Man*, p. 92. "Celtis" in Latin means a 'chisel', and the Biblical word *celte*, found in the Job, xix. 24, means "with a chisel". Some scholars derive the English word "celt" from these words, while, others derive it from the Welsh word "celt" meaning "a flint", and deny that the latter has any connection with the Latin or the Biblical words. Vide supra, n. 142f.

13. T.B. (14), II, p. 246f.

14. CAH., I, p. 65.

gradually learnt to protect himself effectively from the vagaries of Nature, from heat and cold. In this, not only his dwellings, but the hides of the animals that he killed also helped him in a considerable measure. As seen already, such hides and skins were his earliest clothing; and they were also some of the earliest articles of trade, and even mediums of exchange. Scrapers and borers (or perforators) were being used by him for long, in making such clothing. The agricultural produce could be better swallowed after crushing and pounding it. And this made him invent tools for crushing or pounding, such as pestles and mortars, corn-crushers, mealing-stones, pounders etc. The making of some of these implements required a great skill, which he mastered for the first time in this age. Querns (called "chakki" in Hindi and "jate" in Marathi), invented by the end of the Neolithic Age, appear to have assumed different forms in different countries. As Prof. Childe observes: "The grinding could be done by pounding in a mortar, but the standard procedure was to rub the grains on a saucer-shaped or saddle-shaped stone with a bun-shaped or sausage-shaped rubbing-stone. Such querns must, however, be made of tough stone, or the meal will contain as much grit as flour."¹⁵ In later times, bee-hive and disc querns were invented.¹⁶

Mankind went on perfecting the art of killing, as well as that of constructing. Beautifully-chipped flint-arrow-heads are known to have been in vogue before the end of the Neolithic Age.¹⁷ For war and for chase the neolithic man made "daggers, javelin-heads, sling-stones, bolts, lances and arrow-heads, some of these last of exceeding beauty and finish."¹⁸ Quite a large variety of substances other than flint, e.g., chert, agate, chalcedony, lydian-stone, carnelian, sardonyx etc., gradually came into vogue for the making of the neolithic implements. Stag-horns were also used for making axes and hammers.¹⁹ In connection with the tools that were (and are) often described as neolithic saws, and that are generally made of flint, we may remember that Prof. Flinders Petrie found out that they were only serrated flint blades of a wooden sickle, attached

15. Childe, WIH, p. 52.

16. Calling such a basis of the classification of these implements "the utilitarian aspect of the artifacts", Mr. Amalanand Ghosh, Director-General of the Archaeological Survey of India, expresses his dissatisfaction with such a terminology. (IHQ, XXIV, 1948, p. 3) But what better alternative would he like to suggest in the place of the existing one, accepted by the archaeologists all over the world?

17. E.B. (14), II, p. 246f.

18. Clodd, *Primitive Man*, pp. 93-94.

19. Ibid., p. 93

along the cutting side.²⁰ It was necessary to attach more than one of such blades or "saws" to make a sickle.

In the words of Prof. V. Gordon Childe, "neolithic societies.... generally had at their command other tools. Besides their hoes, sickles, and querns demanded by cultivation, most neolithic societies employed an efficient drill that could pierce thick blocks of tough stone that mesolithic peoples could perforate only by laborious hammering. The drill-stock was presumably of wood and probably rotated by looping a bow-string round it and then moving the bow backwards and forwards with one hand, while the other pressed on the top of the stock. This is called a bow-drill, and remained in use till the Middle Ages, when it was slowly superseded by the brace."²¹

Lake-Dwellings, and Kitchen-Middens

The Neolithic Age is marked out by a rapid growth of population, and also of "clusters of huts", or petty villages, that grew along the banks of rivers, lakes etc., or on hill-tops. Of such villages, the most famous include the lake dwellings of Alpine countries, and the kitchen-middens (or shell-mounds) of Denmark and Scandinavian countries. The lake-dwellings were found on both the northern and southern sides of the Alps, including "Switzerland, the French Jura, Wurttemberg and the northern frontiers of Italy."²² These lake-dwellings first attracted the attention of the scholarly world in 1854, when the water level of one of them, viz Lake Zurich, sank to unprecedented depths, revealing the wonders of a bygone age almost intact. "Not only were the timbers of those ancient platforms preserved, but a great multitude of wooden, bone, stone, and earthen-ware utensils and ornaments, remains of food and the like, were found in the peaty accumulations below them."²³ The household utensils included wooden pitchers, dishes, bowls, ladles, spoons, scoops, cups and tubs, and handles of all sorts, as well as pottery jars, dishes and bowls.²⁴ The implements found in these dwellings included harpoons, scrapers, perforators etc., made of "bone and deer-antler, perpetuating Magdalenian and Azilian forms, flaked flints like that of Azil and

²⁰ De Morgan, *Prehistoric Man*, p. 71. Vide supra, pp. 121f.; 127; 128; 130; etc.

²¹ Childe, P A , p. 30.

²² Clark, p. 63.

²³ Wells, p. 106.

²⁴ Breasted, *Ancient Times*, p. 21 f., Clark, p. 65 and p. 69, etc.

Tardenois, and especially miniature flakes,"²⁵—which are here often mounted lengthwise in wooden hafts, confirming the conjecture about similar "pygmy" flakes, made by Dr. Flinders Petrie, Dr. V. Gordon Childe, Dr. Vincent Smith and others. Fish were caught by bone-hooks, or by nets made of flax. Pieces of linen, that have survived, afford us little indication about the neolithic man's apparel, except that yellow was a favourite colour with him.

Perhaps the most noteworthy fact about these relics is that the "wheat, barley, millet, and flax, found in these Alpine pile-dwellings are of the same species and varieties as were cultivated in the earliest settlements on the Nile alluvium, and in the earliest stratum at Anau."²⁶ Not only cereals were known to the lake-dwellers, but oats, rye, peas, nuts, as well as cherries, apples, pears, raspberry, strawberry, blackberry etc., were also well-known. As pointed out by Prof. Grahame Clark, these lake-dwellings "have given us more tangible evidence of the perishable aspects of the material culture of Neolithic man than all the 'dry land' sites of Europe put together."²⁷

The same authority gives us a glimpse in the architecture of these lake-dwellings: "The wooden houses were built on frames, sometimes laid directly on marsh bordering a lake, sometimes on piles driven into the lake-bed a certain distance from the shore.... At Riedschachen, in Wurttemberg, both types of houses were found superimposed.... All the houses were rectangle in plan and were sub-divided into two rooms, the pile-dwellings being differentiated by their greater size and the extensive development of their fore-porches. The clay hearths and baking-ovens were of course preserved in perfect condition."²⁸ Lastly, there is some evidence to show that the lake-dwellings continued to exist in the beginning of the Copper Age.

The kitchen-middens (Danish "Kjoekken-moeddings") are mounds marked for the most part by food-refuse (including shells of oysters, mussels, periwinkles etc., and bones of birds, beasts and fishes), that are found scattered over portions of north-western Europe, including Denmark and the Scandinavian countries. Generally 15 to 20 feet broad (but sometimes even 200 feet broad), and 5 to 10 feet thick, these mounds extend in length from 50 to 1,000

25. CAH, I, p 72 (vide supra, p 127f, 130).

26. Ibid., p 72. Also read Keller, *Lake Dwellings of Switzerland and other parts of Europe* (1866). Also Munro, *The Lake Dwellings of Europe* (1890).

27. Clark, pp 63-64.

28. Ibid., p. 64

feet. Implements of flint, found here, include axes, hammers, arrow and spear-heads, scrapers, cores, knives, drills, paring-knives etc., together with fling-stones, awls etc. Quite a large number of these settlements are found along the ancient coast-line, and the bones of deep-sea fish among the relics betray their sea-faring activities. "Similar refuse-heaps occur in various parts of the world, on the banks of the great American rivers; on the seaboard of South Africa, South America, Australia, and wherever man has eaten fish and left their bones behind him in his primitive migrations. These were always along coast-lines and by river banks."²⁹

In the kitchen-middens of Denmark and the Scandinavian countries, we can witness a gradual development of human culture, since the initial stages after the passing of the last Ice Age. In the earliest layers, we come across Mesolithic (including Campignian) artifacts, no domestication of any animal except the dog, hardly any pottery etc.³⁰ In later ones, we come across neolithic implements, some indirect evidence of the introduction of copper etc., fragments of coarse pottery, megalithic monuments etc. A gradual development is witnessed throughout the different phases of this culture, from rude implements to highly polished ones. Some of the more advanced implements found in the kitchen-middens, though not actually associated with copper implements, must have belonged to a period when Copper Age had already begun in regions further south, according to the considered opinion of some eminent archaeologists; such implements include the "double-ended axes, axes with flat sides, or widely curved cutting-edge and hand-led daggers of flint."³¹ On the other hand, it is also pointed out by other scholars that in the older kitchen-middens, pottery, which is so abundant in the oldest lake dwellings, is scarce, and in many it is altogether wanting. All this shows that the kitchen-middens extend over a considerable period, from the Mesolithic Age down to the beginning of the "Copper or Bronze Age", whereas the lake-dwellings do not go much before the beginning of the Neolithic Age, although their lower limit comes to the beginning of the Copper Age.

Pottery: A Neolithic Speciality

Indeed, all archaeological evidence goes to show that pottery is a speciality of the Neolithic Age. Small, sun-dried mud-slabs,

29. E. Clodd, *Primitive Man*, p. 103

30. Lubbock, *Prehistoric Times*, pp 230 f., 240.

31. Ashmolean, p. 78.

that are often formed in the bed of the river, may well have suggested the idea of making pottery. But, it will be readily admitted, that the invention of pottery goes ill with the life of the food-gatherer or the hunter, which the palaeolithic man essentially was. On the other hand, the accumulation of grain in large quantities not only produced a stable economy, but also created problems as to the storage of such large quantities. These problems were solved by mankind by a number of methods, including making of underground earthen pits etc. But a satisfactory solution was obtained only after somebody hit upon the idea of making big earthen jars. Thus, taking into account all facts and factors, it would appear that pottery is an invention revealing the existence of a more stable economy than we meet in the life of the palaeolithic hunter, and that its invention must belong to the Neolithic Age.

Some Feminine Inventions

Not merely this. Like agriculture, pot-making also appears to have been a feminine invention. No less an authority than Prof. Gordon Childe informs us that "Soviet experts have recently examined the finger-prints left by neolithic potters on their vessels; all belonged to women."³² One may now well understand the importance of matriarchy in the Neolithic Age.

Another important fact is that clothing made of textile is in all probability an invention of the Neolithic Age. We have seen that already in the Mesolithic Age, mankind was faced with the scarcity of meat. This also suggests that he was faced with the scarcity of hides, for the purpose of clothing. But with the greater dependence on agricultural surplus and the rapid increase of the populace as a result of this surplus, the problem of this scarcity must have become more acute: Hides could not be procured in sufficiently large numbers for clothing all the populace, in the coldest of seasons. It is to the fair sex again, that we have to attribute the invention of the art connected with spinning and weaving, which enabled mankind to do away with other animals' hides and skins, to ward off its cold. The fair sex has steadily refused to part with this speciality of her own, probably ever since she invented this art in neolithic times. Undoubtedly, the patient industry required by this art belonged to her and not to the man; and despite her dominating attitude at home and abroad, there was the sense of shame also. Flax was the earliest textile to be used by mankind,

32. Childe, P.A., p. 31.

and for spinning, it is the finest of the textiles, that produces the quickest result. Thus, in lake-dwellings and other neolithic sites, the material for clothing was always flax. It was found that fibres of the flax could be strengthened by twisting them, and that this could be done more easily by hanging a weight and spinning it, than otherwise. Out of such weights developed the spindle-whorls, which, or parts of which, we find strewn all over the ancient neolithic and post-neolithic sites throughout the world.

Potter's Wheel

The principle underlying the use of the spindle-whorls is not much different from that underlying the use of wheel in pottery-making. The spindle-whorls, once invented, may have been a good sport and a pastime. It is just possible that it was the use of the spindle-whorls, that suggested the application of a small, solid wheel to the making of a pot. Indeed, the earliest "potter's wheels", found in Egypt, Palestine etc., are only large wooden or stone discs, and not regular wheels of carts etc. This may also indicate that the use of the potter's wheel was in vogue earlier than that of the cart-wheel; but it is quite likely that one may have led to the other in due course.

Whatever time was available for woman from seasonal harvesting and cooking was often usefully devoted towards pot-making, spinning etc. And although weaving may probably have been a special task of the woman practically throughout the Neolithic Age, there are at least some neolithic communities (of a later date), known to the archaeologists and anthropologists, in which weaving belongs to men, just as spinning does to women. It is quite possible that the job of weaving passed on to men totally, only in later times. It is easy to imagine that the idea of weaving may have been suggested by the early experiments of the woman with straw basketry, which appears to have been intimately connected in the earliest days of storage-making or pot-making, with the manufacture of pottery. As to this connection, we may note here the following from Prof. V. Gordon Childe: "In the neolithic villages of the Fayum, perhaps, the oldest of their kind, excavated silos, lined with straw basketry or matting, are the most substantial constructions that have survived."³³

The use of fire in the case of pottery may have been, perhaps, not altogether deliberate in the beginning. But once it was made,

33 Childe, MMH, p. 83, see Childe WJII, p. 47

it revealed new possibilities. "The art of pottery arises from the discovery that clay can be moulded into various shapes and then hardened by fire so as to hold water or other materials such as grain, and so as to serve for storage, cooking and drinking."³⁴

Man's experiments with the moulded clay and fire may have been helpful to him, also in another direction, that of brick-making. While this process appears to us probable, another possibility cannot be altogether overlooked. It is not impossible that it was during the experiments he made with his hut and other dwellings, that man discovered the various uses of clay, and that a number of arts, including those of brick-making, pot-making etc., may have gradually revealed themselves to the Stone Age man. But there can be no denying that for both pottery-making and building of permanent clusters of huts (i.e., of tiny villages), the basis had been laid down by the "discovery of agriculture". We are told that "in (only) one or two instances, fragments of what has been described as pottery have been found in palaeolithic industries, but no finished article has been yet unearthed."³⁵ An examination of hundreds of palaeolithic and neolithic sites leaves no doubt that pottery is essentially a neolithic product. In them, we have conclusive evidence to prove that the absence of palaeolithic pottery is due, not "to the imperfection of the record" (as was hesitatingly suggested at one time), but, indeed, to the palaeolithic man being not really acquainted with it.³⁶

For whatever purpose pottery was first invented, it was not long before it was used for various purposes, including storing water for drinking, cooking etc.; and this resulted in the origin of an astounding variety of pots, before the end of the Neolithic Age. We have already noticed above how some of the earliest varieties originated. We have seen that the earliest pottery was hand-made and that the wheel was applied to it only later. We have also seen that some of the earliest pottery—of the hand-made type—was only sun-dried; nay, even the earliest bricks were only sun-dried and not burnt. We have also some pottery that is hand-made and "unevenly burnt without oven"; such is found in the Lake-Dwellings etc.³⁷ We have seen that some of the earliest decoration on pottery, intentional or unintentional, consisted of finger-prints; besides there are nail-marks etc. Gradually, with the use of nails and fingers, the potter could create a number of decorations, especi-

34. OMK, p. 49.

35. F. B. (14), II, p. 244 f. Read here Childe, DEC, pp. 2-3.

36. Contra Sayce, *Archaeology of the Cuneiform Inscriptions*, p. 37.

37. Breasted, *Ancient Times*, p. 22.

ally on wheel-made pottery. Again, it was not before long that he learnt the use of what the archaeologists know as the "slip", which was obtained from the wash of ferruginous clay. "The pot was moulded out of quite coarse material and then, just before firing, was dipped into a mixture made of fine clay and water. A thin veneer of this mixture thus covered the pot and formed a smooth outer surface over the inner coarser material from which the main body of the pot was made."³⁸ According to some authorities, the "first use of a 'slip' or wash before firing, to produce a red ware, and the use of a brush and paints to make geometric or other symbolic designs on the surface, occurred during the early Neolithic period of the Near East."³⁹

Gradually the use of different clays etc., gave rise to colour decorations. We find various patterns, either in incisions on the surface of the pots or in colour decorations. We find some examples "highly polished as if with a bone or a flint; others, again, in slightly more advanced times, have patterns incised in the wet clay with a sharp instrument. These patterns are mostly either of a wavy or geometrical style. They are followed by similar patterns in pigment, either dark on a light ground or light on a dark ground."⁴⁰

During the latter half of the Neolithic Age, technical advance in firing appears to have been achieved, with the invention of kilns or ovens. This "permitted a higher temperature when firing, and more efficient painting on pottery surfaces."⁴¹ Ultimately this also made possible the invention of glazes. By gradually improving and perfecting the method of firing the pots in kilns, man was also able to obtain perfectly "rick-red" varieties of pots. And, perhaps, it was not very long before the end of the Neolithic Age, that the potters' wheel, referred to above, was invented, if, indeed, it was not invented in the Copper Age.

Shapes of Pots

Whatever that be, as suggested above, vases of different shapes must have come into existence to fulfil different purposes. There was, however, another important factor that also appears to have

38. E.B. (14), II, p. 244.

39. Jacobs & Stein *Outline of Anthropology*, p. 94.

40. OMK, p. 489. Artistic carvings of the man (or the woman?) of leisure are first clearly displayed in this field by the beautiful Badarian flasks, with plentiful decoration, which is however, of the simplest description (See Childe, MAE, p. 57, cf. n. 71 f.)

41. Jacobs & Stein *Outline of Anthropology*, p. 94.

guided the potter in giving various shapes to his pots. Before the use of pottery, it is quite possible that man made use of dried shells of gourds and pumpkins as well as hides and skins of some animals, for storing water etc. Indeed, some of the earliest literary texts in India and in China refer to shells of gourds, being used for the purpose of storing water etc.⁴² It is no wonder, therefore, that some of the earliest shapes of pots resemble gourds.⁴³ The latter are essentially a product of warm, southern countries like the Mediterranean ones, and those of the Near East. Potter's art may, therefore, be supposed to have originated in one of these southern countries, where agricultural civilization (with its problems and facilities) prospered first.

It may be easily guessed that for the purpose of storing water, not only pots "formed of gourds, or made of clay" were used,⁴⁴ but also others made of stone, wood and hide. Stone vases are known from late Neolithic and early 'Copper or Bronze Age' sites: Those of wood and hide have almost wholly disappeared, on account of their perishable nature. That there were actually vessels made of hides admits of no doubt; since, not only do we find early literary references to such vessels,⁴⁵ but we also come across present-day illustrations of such references in the water-bags of Bhishtis in India. Further, in excavations of various sites of the late Neolithic and subsequent epochs, we come across theriomorphic vases, made of earth; and from the existence of these, it is possible to infer that hides of whole animals themselves must have been used occasionally for the purpose of storing. It has also been noticed by some scholars that the earliest neolithic pottery exhibits forms taken "almost exclusively from leather vessels."⁴⁶ Examples of such pottery may be gathered from the earliest strata at Anau (I), which were characterized by the use of flint flakes, perforated mace-heads, spindle-whorls, and of wheat, barley etc. and mud-brick huts.⁴⁷ Dishes, bowls and flasks are easy enough to make for anybody who can make gourd-shaped or water-bag-shaped or theriomorphic vessels.

⁴² 'तथ्यास्तको वेशालेयो वत्स आमांदलावुपात्र पात्रम् ।'

⁴³ V. VIII, 10.20 Shih Ching, III n 64 "Dried gourds for cup are with spirits filled."

⁴⁴ CAH, I p. 701 Childc, VIII, 1 p. 48, E.B. (14), VI 932

⁴⁵ V.I, 1 p. 141 (on Kalasa)

⁴⁶ V.I, 1 p. 180 (on Kosa) Cf. R.A., III 32.52

'सेक्तं कोशं सिसंवं पिवध्यै'

⁴⁷ CAH, I, p. 72

⁴⁸ Ibid. p. 80

All these shapes could be permanently given only by burning them in fire.

That there were vases of wood is also proved by literary allusions in the Vedic literature, since we find wooden Soma vessels (i.e., Drona-kalasas) "frequently alluded to in the ritual".⁴⁸ Vases of stones like slate, syenite, porphyry, diorite, basalt, alabaster etc., turned into various shapes, also came into use already in the late pre-dynastic Egypt. They continued to be popular in the Pyramid Age. Some types of pottery in Egypt have been modelled after stone vases, and "are sometimes speckled in imitation of the crystals of hard-rocks or decorated with spirals suggested by nummulitic limestones, or with veins suggesting agate and carnelian, common minerals of the desert".⁴⁹

48. V.I., I, p. 141 (on Kalasa).
 49. De Morgan, *Prehistoric Man*, p. 212.

CHAPTER X

NEOLITHIC AGE (Continued)

Painted Pottery

IN THE last chapter, we dealt with different aspects of an important revolution in human history, that was brought about by the "discovery of agriculture". The details given in that chapter would, we believe, be sufficient to show the general accuracy of the following remarks of Prof. Will Durant: "In one sense, all human history hinges upon two revolutions: the neolithic passage from hunting to agriculture, and the modern passage from agriculture to industry." In the present chapter, we shall treat a few more specialized aspects of the neolithic culture (beginning with painted ware), especially of the late neolithic culture, when agriculture was comparatively developed, and well-stabilized units of neolithic huts, i.e., neolithic villages, had sprung far and wide, throughout Egypt, the Middle East etc.

It is in the late Neolithic Age, that we begin obtaining painted pottery for the first time. The primitive line decorations and mattress and other designs are found to be gradually replaced by coloured designs, that are done first in monochrome, then in polychrome. And these changes are also symbolic of the development of culture, the polychrome ware being found associated with the beginning of the Copper Age. Thus while the earliest strata at Tepe Gawra, Tell Halaf, Ninevch, Jamdet Nasra, al 'Ubaid, Susa (1), Anau (I) etc., yield painted pottery with "dark on light" decorations, subsequent strata, belonging to the Copper Age or to the Bronze Age, yield pottery exhibiting polychrome designs. We also find geometric patterns being gradually superseded by animal designs, as, for instance, at Susa and other places. Similarly, the hand-made pottery of the Neolithic Age is found gradually replaced by the wheel-made pottery, that appears to have come into existence probably first in the Copper Age, or perhaps by about the end of the Neolithic Age.

In Egypt, too, we observe similar developments. The grey and black wares of Tasa (in middle Egypt) and the red, black, and black-on-red wares of Badari, which belong to the Neolithic Age, have, if at all, only simplest, geometrical patterns. And these give place to others, with more elaborate patterns and animal designs,

found at El Amrah, Gerzah, Semaineh etc. If the commonest animals, represented on Mesopotamian pottery, are "the serpent, goat, hunting dog, stork, turtle and eagle with outspread wings",¹ those found on the Amratian, Gerzean and Semainian (or Semainean) wares include the hippopotami, crocodiles, ostriches etc., that are typical of the Nile Valley.² It is important to remember that these wares belong to the Copper Age.

The chief neolithic settlements in Egypt fall mainly under two categories: (1) Tasa: which yielded ground and polished flint or lime-stone axes, mace-heads, fish-hooks, corn-grinders, some kind of cloth, possibly linen, necklaces of perforated shells or beads of stones, bones, or ivory, rectangular palettes of alabaster to grind the malachite (used as an eye-paint). (2) Badari, Fayum, Merimde etc.: where we come across barley and emmer-wheat; bone-hooks used for fishing; ground and polished axes, adzes, perforated mace-heads, long barbed arrow-heads, saws, knife-blades, thin laurel-leaves, made of flint^{2a}; points, borers or arrow-heads, and (barbed) harpoon-heads, made of bones; rectangular or oblong palettes of slate; necklaces of shells or green-glazed stones; ivory spoons, combs, and pins, beads of felspar and other stones; figurines of mother goddesses; etc. The adzes appear to have been very useful for cutting the fire-wood, burnt remnants of which appear to have been found in abundance in some of these places. The dolichocephalic Negroid skulls with slender skeletons, found at Badari, supply us some indications about the authors of this civilization. Some types of pots, found at Merimde and in the Fayum, resemble leather vessels, and are supposed to have been possible prototypes of similar Danubian vessels.³ At both these Egyptian localities, granaries or store-houses of grains have been identified.

According to Prof. Gordon Childe, the industry of Merimde contains numerous indications of a later development than that of the Badari industry, including straighter arrow-heads, flatter harpoons etc.⁴ He points out that the alignment of houses along definite

¹ C.M.H. I, pp. 361-363.

². The "Sequence Dates" chronology of pre-Dynastic Egypt is as follows
 S. D. 64-77 : Late Predynastic Copper Age Semainean < Semaineh.
 S. D. 38-63 : Middle Gerzean < Gerzah.
 S. D. 30-37 : Early Amratian < El Amrah.
 S. D. 21-29 : (? Late) Neolithic Age Badarian < Badari.
 S. D. 20 : (? Early) .. Tasian < Deir Tasa

For Badarian pottery and a stone-vase, see plate III, no. 2.

2a. For Fayumic arrow-heads and Badarian saw-flint, see plate III, no.

3. Childe, WHH, p. 50.

4. Childe, NIMAE, p. 58.

streets noticed at Merimde in Egypt betrays the existence of some form of social organization already in the Neolithic Age,⁵ and that these organizations had some unwritten laws or regulations of their own. Indeed, no society ever existed without an organization, whatever its nature; and there was never any organization without any rules, regulations, or laws, howsoever rudimentary or primitive in their form or contents. Further, arrangements similar to that at Merimde have been noticed in other neolithic settlements, e.g., in those found in Germany, South Russia etc., which shows that this was not an isolated phenomenon, and that foundations were being already laid in the Neolithic Age for the rise of such organizations as those that regulated the civic life of such prosperous cities as Mohenjo-daro and Harappa that we come across in the Bronze Age. The controlling organization at Merimde, however, did not apparently care as to where the dead were buried;⁶ for we find them buried within the settlement. At Tasa and in the Fayum, however, we find them buried outside the settlements, a fact, which can be taken to indicate some sort of control or some social or municipal organization of a primitive type, in these localities also.

Tepe Gawra (near Mosul), Tell Halaf (in Syria, on the Khabur), Hassuna, Samarra, Nineveh etc., are to be reckoned among the hundreds of neolithic settlements, that have been found in the plains and the plateau of the Near East, e.g., in Mesopotamia, Syria, Palestine, Cicilia, Iran etc. In some of these, we witness an unbroken continuity of occupation from the Neolithic Age to the end of the Bronze Age, or even the beginning of the Iron Age. At Tepe Gawra, Prof. E. A. Speiser found that the remains of the twenty-six layers of successive buildings (superimposed one above another), formed an imposing hillock over 100 feet in height. The earliest settlement of this place is attributed by Prof. E. A. Speiser to the authors of the "proto-Zagros" civilization, that produced the "Painted Ware Culture", and that spread from the northern highlands to the head of the Persian Gulf according to that archaeologist. The earliest pottery comprises mainly a plain undecorated ware and a monochrome ware, the latter of which is a brittle light ware painted in red. At Hassuna, Samarra and other places, we come across another type of painted pottery, viz a black-on-buff ware, which marks the earliest strata of neolithic occupation in these localities. The exact relations of these almost contemporaneous cultures with each other and with the subsequent cultures of the

5 Childe, WHII, p. 52

6 Childe, NIMAF p. 611

Near East are yet to be finally determined. However, among the truly neolithic or pre-Halafian culture sites is the one noted by Mr. Burkitt at Souk Su Huyuk, more popularly known as the Mersin Tell, which he looks upon as the earliest neolithic culture in the Near East. He compares the incised and other wares found here with similar pottery found in the lowest strata at Nineveh, Alishar, and other sites.⁷ Another site, Ras Shamra, has also yielded a series of cultures, including the neolithic ones that are comparable to those of Hassuna and Mersin.⁸

Tepe Gawra, Tell Halaf, Nineveh, the Mersin Tell, Hassuna, Samarra, Alishar, Ras Shamra, Jerico, Tell ej-Judeideh, Anau, Tepe Sialk (at Sialk I) etc., are some of the neolithic sites in the Near East, where the monochrome pottery was found in the earliest strata. The earliest neolithic settlements, that are found here on the virgin soil, mostly belong to the advanced Neolithic Age. They are associated with ground or polished axes and adzes, mace-heads, sickles engrafted in wooden and bone handles, and saddle-querns. At Anau and other sites, remnants of barley and wheat, and bones of domesticated animals like the cattle, sheep, pigs, fowl etc., are found associated with the painted ware. The pins and needles of copper unearthed in some sites would probably show that foundations were being laid for the commencement of the Copper Age: acquaintance with certain useful qualities of this metal must have been already made in these times. But regular "quarrying" or mining of this metal could be made only after the utility of the copper axe was realized and its need felt. Until then, the use of copper (for pins etc.) could hardly affect the social structure of the day. As explained elsewhere, therefore, we may legitimately look upon the invention of the copper axe in the "Halafian Culture" as marking the beginning of the Copper Age. It is only the capacity of a new invention to effect a change in the social structure of the day, that lends that invention the attribute of marking the beginning of a new age.

It will also be clear that the earliest strata at Sialk and other sites in Mesopotamia, Syria-Palestine and other countries, reveal a culture similar to that in Tasa, Badari, and other sites. These strata are marked by the remains of the clusters of huts of packed clay, where the dead appear to have been buried under the floor of those huts, in a contracted posture and covered with red ochre. At Mersin, the post-pottery neolithic levels are said to yield even mega-

7. Daniel, p. 219.

8. Ibid., p. 222.

lithic structures, of which we shall speak later on. At the neolithic settlement of Jerico, "permanent houses and shrines, provided with carefully laid, levelled, lime-surfaced, painted and burnished clay floors"—the "oldest known" in Syria-Palestine—are found;⁹ and this fact also provides a comparison with the planned or controlled neolithic settlements of Egypt. On the whole, a glimpse into the culture of different neolithic settlements, scattered throughout the ancient world, makes one disposed to agree with Prof. S. E. Winbolt, who states: "Comparatively short, it (the Neolithic Age) is a period of astonishing vigour, marking one of the most spectacular advances in the history of Man."¹⁰ The rapid increase in the number of settlements is, indeed, amazing.

It is a curious fact that though the Neolithic Age is one of the most remarkable stages in the development of human civilization, it is at the same time one of the most neglected ones. It is not only the most ill-defined of all such stages, but one which is constantly confused with others. Indeed, what should be actually known as the Copper Age culture, or even Bronze Age culture, has been often termed "Neolithic culture", simply on account of the fact that the concept of the beginning of an age is not very clear in the minds of many archaeologists; so that the predominance of neolithic tools and weapons, prevalent in the Copper Age or Bronze Age, frequently misleads them into naming such cultures "neolithic cultures". In describing the culture of this age, accuracy needs to be maintained: due credit should be given to it for whatever inventions were first made and brought into social use during this epoch, but not for any other achievement, that properly belongs to a later age. Such a study is hardly made with any thoroughness till now. The Neolithic Age has, therefore, served as a dumping ground for all post-Palaeolithic and pre-Iron Age phases of culture in various localities. Prof. Daniel agrees with Prof. Fox in stating that the Neolithic Age in Britain served until 1923 as "an ill-defined dumping ground for stone implements (other than Palaeolithic and Mesolithic) not known by clear-cut associations with datable grave deposits to be of the early metal age."¹¹

It is through such difficulties, that we have to wade, in making a number of observations given below. As such, the latter cannot be looked upon as anything but tentative. Since no systematic study has been made on a wide scale about this culture, and, at any rate, since the authorities available to us at the time of writing

9. Albright, p. 62.

10. Winbolt p. 50.

11. Daniel, p. 235. Also see his remarks quoted above, pp. 95-96.

this work, do not afford us more than a glimpse or two at the conditions of purely neolithic settlements, we are often forced in the following description of this civilization to base our knowledge of the culture of the Neolithic Age on what we know of the conditions of the Copper Age, when neolithic culture must have ripened. We have, of course, to eliminate out of this description such factors as owe their origin to the use of copper: and we hope, we have often tried to do this, when possible and convenient.

Throughout this Neolithic Age, communications and trade relations between distant countries were being gradually improved, and the world was coming closer together. "The neolithic farmers of the Fayum procured shells for necklaces from both the Mediterranean and the Red Sea. A little later the predynastic inhabitants of the Nile valley began to secure regular supplies of malachite from Sinai for painting their eyes.¹² Stones like turquoise, found in the neolithic villages of Sialk in Iran and Anau in Turkmenia, illustrate the same sort of traffic. Throughout the Danube basin, and even beyond it on the Elbe, the Saale, and Middle Rhine (as well as in the Balkans), Spondylus shells were commonly used for bracelets and beads by Danubian peasants, though they had to be brought from the Mediterranean."¹³

Painted Pottery

It is on account of these growing trade relations that we find the different types of pottery that came into existence during the Neolithic Age spreading to different countries. Also, it is quite early that we find the designs on the pottery getting complicated. Thus, on some Hassuna wares, we find painted designs and incised ones combining; while on some Samarra pots, geometrical designs are found combining with animal representations. Most remarkable, however, is the Halafian pottery, the finest of which includes a fine, polished, buff ware, having a reddish slip, and possessing elaborate designs in red and black, some of which are geometric in shape, combined with animal figures. It is during this age and the

12. Cf. W. J. Perry, *The Growth of Civilization*, (Pelican Books, 1937), p. 49f.:—"It is well known that the pre-dynastic Egyptians were in the habit of painting their faces with malachite, the green ore of copper, which they powdered on their slate palettes. They chose this ore because of its colour. As has been shown by Mr. Donald Mackenzie, they considered that green was a life-giving colour, so that green paint worn on the cheek would protect the wearer."

13. Childe, P.A., p. 60.

subsequent epochs, viz the Copper Age and the Bronze Age, that we find such designs in monochrome and polychrome spreading far and wide.

As Prof. E. A. Gardner observes: "All we can notice at present is its wide distribution, not only around the Mediterranean basin and northern Europe, but also in Asia, in Mesopotamia and Persia, and even in India, and south Russia and the Ukraine. What is more remarkable is that pottery with similar decoration is found in both North and South America. In New Mexico, for instance, it is still made at the present day."¹⁴ It is clear that the earliest painted pottery, that originated during the late Neolithic Age and that developed during the Copper and Bronze Age of Mesopotamia and other countries of the Near East, was copied, recopied, and continued to be used, in a number of countries, removed from them both by time and distance. The initial patterns necessarily underwent numerous variations in all these different localities and at different times. In reality, some of this pottery resembles that of the later strata of Mesopotamia more than the earliest (mentioned above).

Painted Pottery in the Far East

The late "neolithic" civilization spread almost to the easternmost end of the Eurasian continent. The first important finds of neolithic pottery and implements in this region were those found by two Japanese scholars, named Torii, in 1914-15, in the regions of eastern Mongolia and Manchuria. At Yang Shao Tsun and other sites in the loess of Honan, Dr. J. G. Andersson and his party discovered for the first time definite traces of the spread of the culture of the "Neolithic Age" in China. They found out, in addition to a coarse, unpainted ware, and some wide-bottomed gray pottery, also some fine, red, "polished" ware, with painting in black. This last bears a certain amount of likeness with the "black-on-red" pottery, unearthed by the expedition conducted by Prof. Pumelly

14. OMK., p. 480. Recent researches appear to lend support to an early migration of the early Copper Age culture from the Old World to the New World. Dr. Willard F. Libby, nuclear physicist of the University of Chicago, has recently opined that the "American Indians inhabited the State of New York 5,000 instead of 2,000 years ago, as archaeologists supposed. He based this conclusion on the occurrence of radioactive carbon 14 in wooden artifacts and bits of charcoal from camp fires. Radioactive carbon has a half life of about 5,000 years. Hence the radioactivity of carbon derived from organic matter 5,000 years old is half that derived from carbon in wood which is still alive." (*Sunday News of India* 29-10-1950). See the appendix I, and especially the second article, referred to therein.

at Anau. At Yang Shao Tsun and other places were also found a number of thick symmetrical stone axes, and arrow-heads ("usually made of some schistous rock,"¹⁵ but sometimes also of bones), besides spindle-whorls of burnt clay and stone. These "neolithic" sites yield ample evidence to prove that the "neolithic" ancestor of modern Chinese depended for his living on a primitive agriculture (usually conducted by a flint-tipped hoe), fishing and hunting.

Neolithic sites of both the southern Manchuria and Honan have yielded stone knives that are either rectangular or crescent-shaped. Whatever the connections of such weapons, there appears to be some reason to believe that the culture found at Yang Shao Tsun and other places belongs to a somewhat advanced stage of the neolithic culture. A certain amount of similarity, observable in the pottery of this Yang Shao Tsun culture and that of Tripolye (to be referred to later on), may be explained in this fashion.¹⁶ Already in the ceramic types found at Yang Shao Tsun, we come across what may be safely described as the proto-type of that wonderful creation of Chinese ceramic art, viz. the Li-tripod with bulging, hollow legs.¹⁷ Numerous forms of it have been unearthed at this site.

All these factors, taken together, suggest the possibility that the culture, found in these fertile districts of China, does not in reality represent the true Neolithic Age, but about the end of that age, if not actually the period, which had seen elsewhere (i.e., at Tripolye etc.) the beginning of the Copper Age. Another factor in favour of this hypothesis is that the best examples of the painted pottery of the Yang Shao culture, found in the provinces of Kan-su and Honan, are reckoned among the very best products of neolithic art the world over.¹⁸ Thus, the artistic excellence of the Chinese is exhibited ever since the days that witnessed the first real flowering of the agricultural civilization or neolithic culture in their land. And, since this culture continued into the Bronze Age, some authors like Tsui Chi have called it "Stone-Bronze Age" culture.¹⁹ Tsui Chi also states that some Yang Shao culture sites in the province of Kan-su exhibit "basket designs" on a gray ware, which may prove the existence of some textile, probably hemp, among the ancient Chinese. Prof. Creel points out that the neolithic Chinese knew weaving baskets and also cloth. To describe

15. Andersson, pp. 103f., 168f., 201f., 216f.

16. Ibid., pp. 215f.

17. Ibid., p. 220.

18. Creel, p. 45.

19. Tsui Chi, p. 26.

their culture briefly: they sewed with bone needles, used stone axes, knives, bows and arrows, adzes, mealing-stones, a variety of pottery, mostly coarse, etc., and in addition to some agricultural products, especially millet, they ate the meat of dogs and pigs, both of which they domesticated. Among numerous points that go to disprove the theory of isolated development of Chinese culture, the most important one concerns painted pottery; but in this, the borrowing may not have been one-sided: We find that some tripod vases found in Tripolye culture sites "are remarkably like the Li-tripods" of the Bronze Age China.²⁰

Neolithic Age in India

Very scanty material is available about the Neolithic Age in India, and therefore, obviously there is a great scope for the study of this subject for the archaeologists in India. The lines along which this study ought to be carried out have been indicated in numerous archaeological reports of excavations in similar sites in the Continent and elsewhere; but especially noteworthy are Prof V. Gordon Childe's works, e.g. *The Prehistory of Scotland*, *Excavations at Skara Brae*, *Prehistoric Communities in the British Isles* etc.; since they bring out the more salient features of neolithic remains more prominently than others. Since such a historical method has not been satisfactorily followed in any work on the Neolithic Age in India, we shall content ourselves with briefly enumerating only a few important facts about it.

In Ind'a, neolithic implements have been found in abundance in some districts of the pre-partition Madras State, including Bellary, Anantpur, Cuddapah, Salem etc. Some of the largest finds include those near the Kupgallu hill, and Gadiganuru. Various localities in the states of Baroda, Mysore, Vala (Kathiawar) etc., have also yielded a number of implements of this age. There are other sites in Bengal, Bundelkhand, Rajputana, Sind, the Punjab etc., that would show that the neolithic man occupied nearly the whole of northern India, at one time or the other.²¹ As seen above, certain writers like Prof. P. Mitra, Prof. Obermaier etc. "trace in India a typological series, leading from the rough 'hand-axe' used by palaeolithic man to the polished 'neolithic' celt."²²

Apart from the find of implements, funerary monuments and some pottery, there are hardly any reliable relics of the culture of

20. Creel, p. 43.

21. IGI. (1909), II, p. 92.

22. Childe, *Archans*, p. 108. Supra, p. 138f

the Neolithic Age to be observed at any neolithic site in India, for the simple reason that such sites have not yet been properly excavated—most of the records being made from the surface-finds. As Mr. Coggin Brown observed about thirty years ago—and the position has not yet changed very much till now—"many finds of prehistoric pottery are tentatively considered to be neolithic. They are distributed through the districts of Anantpur, Cuddapah, Kurnool, Tinnevelly, Salem, Bellary, and across Mysore, Hyderabad, Baroda, Kathiawar, Baluchistan and other regions. In South India, pottery is often met with on the sites of neolithic settlements and implement factories, but the collocation of pottery and neolithic implements is by no means an absolute criterion for determining the age of the latter, especially as it is exceedingly difficult to distinguish the neolithic from the later Iron Age ceramic ware."²³

If we bear in mind the foregoing remarks, then judging from the surface finds in Bruce Foote's Collection, we may clearly discern that roughly about 55 sites have yielded "neolithic" pottery, and that a few sites in the Madras Presidency, that yielded such pottery, also yielded Iron Age implements, and, therefore, belonged to the Iron Age. This would perhaps show that iron was introduced in neolithic settlements; i.e., that the Neolithic Age was immediately succeeded in many places of the extreme south by the Iron Age without the Copper Age and the Bronze Age coming into the picture. In the extreme north, we find a neolithic settlement in Kashmir, at a distance of about 10 miles from Srinagar, where the Yale and Cambridge Universities' North Indian Expedition discovered some neolithic kitchen utensils, and neolithic implements, including scrapers, bone needles, polished green-stone axes etc.

Neolithic Culture

As stated above, hardly any emphasis is ever given on the important cultural aspects of neolithic civilization, in dealing with the neolithic sites in India. In Mesopotamia, a typical advanced neolithic settlement is succinctly described in the following by Sir C Leonard Woolley, and there can be little doubt that many neolithic villages in India and elsewhere exhibited the same aspects in general, that are to be witnessed here: "...at al 'Ubaid, about four miles from Ur, we have dug out part of such a primitive settlement. Here a little knoll, fortunately never covered afterwards

23. Brown, p. 8.

with buildings, preserved the remains of huts constructed of mud and wattle or slight timber framing filled in with reed mats, with floors of beaten mud, and fire-places of mud or crude brick, and wooden doors whose hinge-poles turned on stone sockets. In the ruins we found quantities of the fine painted hand-made pottery such as occurs in the lowest levels touched at Ur, rougher household wares used for cooking and storage, hoes and adzes of chipped and polished stone, saw-toothed flints and flakes of imported volcanic glass, sickles made of hard-baked clay, all the evidence of a very simple culture. It was clear that these people cultivated the soil and reaped their harvest of grain; they kept domesticated cattle, sheep and goats; they fished in the marshes (for we found fish-hooks and model boats), and judging from fragments of painted terra-cotta figures of men and women, they seem to have painted or tattooed their bodies; stone weights showed that the loom was known, so that they had advanced beyond the stage when men wore only the skins of beasts (though the tradition of such sheep-skin garments remained on into much later times); and for luxury they had beads cut from shell or rudely chipped from transparent white quartz, carnelian, and obsidian.”²⁴

Diffusion of Neolithic Culture

But it must never be understood that the culture of the neolithic settlements was everywhere just the same, and that there was a monotonous uniformity all over. In fact, it is from the time of the advent of the neolithic age that men of different localities began evincing clear-cut differences in their tastes, about painting and other arts and crafts. These differences undoubtedly arose as much out of that complex of circumstances, which is conveniently summed up by the term “environment”, as out of the freedom of man’s imagination and choice. Again, even the Neolithic Age, short-lived as it was, witnessed various stages of development. Implements and wares of one age (or period) or locality may not always have been either known, or needed, or popular, in another age or locality. Therefore, there will always remain ample scope for research in finding out what implements, wares, des’gns, arts, or crafts, of this age spread out in what localities, or in determining the locality where they originated. It is these different needs and possibilities of different localities, which made communication between different centres of neolithic civilization necessary, even after this civilization

²⁴ Woolley, *Ur of the Chaldees* (Pelican), pp. 15-16.

had spread throughout the ancient world. History knows that in some places this civilization prevailed some thousands of years earlier than in others.²⁵ And we find something like a regular contingency in chronology in the spread of this civilization in various regions. Further, far from being a scattering of disconnected units, the neolithic world appears to have been "a continuous chain of communities."²⁶

Thus, there appears to be sufficient evidence to prove the theory of diffusion of the neolithic and subsequent cultures, to prove that various groups of men had been in close contact, commercial or otherwise, with each other. Not a few neolithic communities possessed surplus wealth. And the easiest way of acquiring such wealth for those who had none was to plunder it from those who had it. In such circumstances, war and plunder became an article of faith, so to speak, of at least a section of humanity, in the Neolithic Age. We have already emphasized the part played by such wars of plunder in bringing distant social units (tribes, peoples etc.) into contact with each other, perhaps ever since the Upper Palaeolithic Age.

Theory of Diffusion of Culture

Therefore, it is not quite correct to say with Prof. Gordon Childe that "practically all neolithic societies had discovered the technique of making pottery."²⁷ Certainly, they did not discover that technique afresh in all these different, but somewhat connected localities. There is no proof of independent origin of all the neolithic culture-groups, except in the far-too-common hypothetical assumption about the sameness of the development of human brain in approximately the same time in different localities. In such an assumption, it is generally assumed that these neolithic discoveries are due to the development of the brain, in all cases, of the women (!), rather than to the progressive utilization of the same type of brain, in accordance with the material needs, possibilities, and accidental discoveries etc. It is forgotten that *above all, imbibing new elements of neighbouring cultures in accordance with the material needs and possibilities of the structure of any society has been the chief factor in the diffusion of culture, attested by historical evidence in all countries and at all times.*

The opponents of the theory of diffusion of culture would like

25. Childe, MMIII, p. 87.

26. Ibid., p. 84.

27. Childe, P. V., p. 31.

to assume that human brain developed within a course of only a few centuries, from a "non-pottery-making stage" so to speak to a "pottery-making stage". Not only this, but each of the processes found in hand-made and wheel-made, painted and non-painted, "slip-covered" and "non-slip-covered" pottery etc., was invented independently and in contiguous geographical area! Those, who oppose the theory of diffusion of culture, land themselves in a position from which archaeological and historical evidence is making day by day more and more difficult for them to extricate themselves. It must, however, be admitted that Prof. Gordon Childe, though originally not following the theory of "diffusion of culture" has gradually come to acknowledge on the strength of archaeological evidence, the substantial basis of that theory, nay, he has himself become a staunch diffusionist, propagating the theory of diffusion, not as it was originally put forward by its first advocates, Smith, Perry etc., but taking a much more comprehensive and realistic view.²⁸ The afore-quoted remarks of his are, perhaps, only a relic of his former views, which have been contested here only because such views are very popular in certain quarters.

"Higher Inventions" of the Neolithic Age

In dealing with the principal aspects of the Neolithic Age, Prof. J. I. Myres includes the following four among the inventions of this age, but prefers to call them "higher inventions." "Observation of the sun and moon in their seasons, first hinted by sundry circles and crescents in neolithic art, . . .; the curiously abstract quality of much else in neolithic ornament, as if number, mass and proportion were felt to have an interest of their own; a conception of value, which may fairly be presumed among people who, though sedentary, are found to have acquired, for whatever reason, commodities from afar like turquoise or amber; and a new self-consciousness and introspection, displayed in emphasis on details of technique in decoration, and in the choice of men and their acts and works, rather than natural forms, for pictorial records."²⁹

As to the first of these "higher inventions", it is clear that the observation of astral bodies, which helped the neolithic man to realize the seasonal nature of agriculture, was, for some reason or the other, utilized by him in connection with the sepulchral structures he erected. Agricultural prosperity enabled man to

28. For certain important observations of Prof. Childe, read especially Childe, P.A., p. 57. Also read our *The Mother Goddess*. (1943, Poona).

29. CII. 1, p. 67

build up and develop in many respects ideological foundations of the whole of subsequent civilization—foundations which concerned themselves with the birth, growth, death and even “life after death”. As suggested at the beginning of this chapter, agriculture was undoubtedly the foremost of inventions made by man, before the coming of the machine age. The ideological foundations, laid down by agriculture, have, therefore, continued to govern, and must probably do so throughout the world, until the establishment of the industrial epoch lays down the foundations of a higher type of ideology.

Origin of Mythology

Agricultural operations were dependent mainly on the seasons, marked out most prominently by the movements of the astral bodies and especially those of the sun. These movements were carefully and patiently noticed; and mythical relations to explain their behaviour, as well as their influence on the plant-life and the animal world, were sought to be established between them and all the world. The conception of family life, taken directly from the social structure, was applied to the earth, the sky, the sun, the moon, the stars etc. The Sky Father and the Mother Earth gave birth to the Sun god and the Moon goddess, which latter also formed a pair. Because of the inability to explain the origin of the former two, they were variously considered as father and mother of each other, or alternately as brother and sister of each other; and with their conjugal relations, mystically conceived, that very vast mythological land, which we find scattered throughout religious literature and folk-lore, originated. (See our *The Mother Goddess*.)

Origin of Funerary Monuments

Man had also come to see the similarity between the sprouting, flourishing and decaying of the crops, and the birth, growth and death of the animal world. Comparable with these phenomena were also the rise, ascendancy and setting of the astral bodies.³⁰ And each of these cycles repeated itself in some form or the other.

30. Cf. “Since the times of the god bodies are created merely to pass away, and young generations take their place: Ra rises in the morning, Tumu lies down to rest in the land of the evening, all males generate, the females conceive, every nose inhales the air from the morning of their birth to the day when they go to their place!” (G. Maspero: *The Struggle of the Nations*, p. 524.)

Quite naturally, a continuity of existence was assumed even after death. And the astral bodies and especially, the Sun-god and the Moon-goddess, were found to govern the rise and fall of the crops—they were the makers of seasons, so essential for agricultural operations. Quite naturally, the neolithic man was led to the conclusion that the astral bodies and above all, the Sun-god and the Moon-goddess, had something to do with the birth, death, and even “life after death”, and the re-birth of the animal world, of man himself. He connected the astral bodies with mortuary relics and erected various structures over such relics in such a way as to betray their connection with the astral bodies, especially with the Sun-god. In the Palaeolithic Age, we have seen that the dead were often buried in a hole in the cave floor, and that even “purposeful burials” are known to have taken place as early as the Middle Palaeolithic Age. But the erection of monuments over the dead appears to have been introduced for the first time, during the Neolithic Age, when we also meet with a variety of structures. And among the structures thus erected, we find that large mass of megalithic monuments, which includes menhirs, dolmens, stone circles etc., and which is found strewn practically all over the ancient world. Many of these monuments of stones, even as those of concepts, continued to be in vogue in subsequent epochs, so that we find quite a number of them belonging to the “Copper and Bronze Age” or even to the Iron Age.

Before turning to the classification and description of different types of megalithic monuments, we shall concern ourselves with another interesting aspect of the neolithic culture, that is connected with the cult of the Mother Goddess as well as with the question of the disposal of the dead. Prof. Grahame Clark, speaking about the prevalence of cannibalism in the ancient world, observes: “No certain evidence is forthcoming for palaeolithic or mesolithic times in Europe, but cannibalism seems to have been an established practice among some neolithic communities. Most convincing is a recent find in the Hohlestein, a cave in the Lonetal near Ulm. Here in a depression, the excavator, Dr. Otto Volzing, came upon the bones of at least thirty-eight individuals, almost every one of them broken up for marrow extraction and intermingled with neolithic (Rossen) sherds, worked flints and remains of horse, pig and cattle, the whole being overlain by a large hearth. The fact that the bones were predominantly those of children only serves to confirm our diagnosis. Almost identical circumstances were observed in the Istallokoer cave in the Bukk mountains of northern Hungary, where the remains of twenty-five persons were also

found under a large hearth, accompanied by neolithic artifacts. The presence among the cooking refuse of some of the Swiss lake-villages of human bones split for the extraction of marrow emphasizes the existence of cannibalism in this part of Europe during neolithic times."³¹

Megalithic Monuments

The principal types of megalithic monuments, found all over the world, may be stated as under:

1) The Menhirs (=“long-stones”): These long, unhewn, monolithic pillars, set up singly, are associated with phallohelio-lithic cult. They are found almost all over the world, some of their most famous centres being situate in Brittany (France), e.g., Locmariaker, Carnac, Menec etc. The huge menhir at Carnac, when it was perfect, was about 63 feet in height and 14 feet in diameter at its widest, and it weighed over 260 tons.³² In India, one of the largest menhirs, to be found in the Cochin State, is 12½ ft. high and 7½ ft. wide at the base. The menhirs are, typologically speaking, only precursors of the *dolmens*, stone circles and other monuments, noted below.

2) The Dolmens (=“table-stones”): These are chambers of the dead, each of which is formed by a horizontal slab, supported by a couple or more of “uprights” (or menhirs). They may have been originally intended as shelters for the dead, and, therefore, fashioned after the manner of those (probably less durable), that they had during their life-time. They often remind us of palaeolithic cave-shelters, which frequently housed the dead also. According to Prof. Childe, “the occidentalists contend that the dolmen was the invention of the palaeolithic survivors of the Atlantic region. The latter had buried their dead in caverns from the ice ages, and throughout the epipalaeolithic (=mesolithic) epoch. And the dolmen might be an artificial cave.”³³ If we remember the antiquity of the Chou Kou T'ien cave of the Peking Man, the

31. Clark, pp. 185-186. We should, however, remember that about the end of the last century, a cove of the palaeolithic times, found near Krapina (in northern Croatia) yielded not only “the richest treasury of the Neanderthal race ever opened by the explorer's spade,” but also fragments of human bones inextricably mixed up with the fragments of the bones of animals they had killed and eaten. Some authorities argue that the human bones, found here, were too fragmentary for the breaking to be accidental. If then, it be purposeful, it only proves the Krapina man to be a cannibal.

32. E. B., (IXth edn.), II, p. 383.

33. Childe, D.F.C., p. 133.

caves of the Neanderthal Man, etc., or of the Billa Surgam caves, the caves in Kashmir and those in the Vindhya range, the Kaimur range, etc., that are associated with microliths, or are adorned with prehistoric paintings, this suggestion becomes at least a little significant. The general line of development of these megalithic monuments runs, in northern Europe, according to Montelius, from the "dolmens" through the "passage graves" to the "stone cists". This may be substantially true about India also.

Dolmens have been found over a considerable portion of the neolithic world, including countries in western Europe (such as Spain, Brittany, Denmark, Sweden etc.), the British Isles, the island of Malta, the Black Sea Coast, Sardinia, western Asia (including Russian and Persian Talysh), the Near East, India, Japan, North Africa, Madagascar, Peru etc.³⁴ In India, they are found at Brahmagiri, Benkal and some other places in the Hyderabad State,³⁵ in the Mysore State and Coorg,³⁶ in Cochin-Travancore-Coimbatore-Malabar region,³⁷ in the Krishna, Godavari, Madura, Anantpur, Trichinopoly (Tiruchirapalli) and Bellary districts,³⁸ in the Bijapur, Dharwar, Belgaum and Kaladgi districts of Karnataka,³⁹ in the district of Poona,⁴⁰ showing that this culture prevailed in South India, especially in the southernmost portions of the Indian Peninsula, for a considerable period. In northern India, they are met with in Assam,⁴¹ but are found almost entirely absent in the Indo-Gangetic plains, where the paucity of appropriate lithic materials appears to have been the cause of the dearth of such monuments.

Dolmens have been often termed as "chromlechs". They have

34. E.B. (9), II, p. 383; Childe, DEC, p. 130f. An. Bibl. Ind. Arch (1934), p. 2; ERE, IV, p. 467, ii.

35. Silver Jubilee Vol. of Ind. Sc. Cong. Assn., p. 312; etc. C.M. Taylor, *Megalithic Tombs and the other Ancient Remains in the Deccan* (Hyderabad), (1941), pp. 2f., 20, 24f., 28f.; etc. See also JRAS., III and IV.

36. Proc. ASB, (1808), pp. 151f.; 184f.; 243f.; (1869); pp. 54f.; 59f.; 202f.; I.A. (1873), II, p. 86f., J. Anthropol. Soc. (Bombay, 1890), II, p. 229f., etc.

37. *Madras Journal of Lit. & Sc.* (for 1878), p. 150f.; (for 1889-94) p. 13f. I.A., VII (1878), p. 26f.; JRAS. (NS), VII, p. 17f.; etc. *Revealing India's Past*, p. 208f.; I.A. (1876), V, p. 150f.

38. *J. Univ. Bombay*, XIV (1946), pt. iv., p. 10f. *L'Anthropologie* (1903), XIV, p. 619f.

39. I.A. (1874), III, p. 306f.; *J. Univ. Bombay*, XIV (1946), pt. iv, p. 10f.

40. *Bulletin, Deccan College Research Institute*.

41. H. Hutton, in *J. Royal Anthropol. Inst.*, LVI (1926), p. 71f. An. Bibl. Ind. Arch. (for 1934), p. 2

very often an opening, that is sometimes, as in the Cochin State,⁴² oriented to the west. Other dolmens are without any entrance or opening whatever. The latter should in reality be classified among the "cists" (kists or kistvaens), mentioned later. The dolmens of both these types, those with entrance and those without entrance, may be wholly or partially above the surface of the surrounding regions, or may be totally underneath the surface. In respect of those, with openings oriented towards the west, this obviously follows suit of the palaeolithic and mesolithic burials with heads turned towards the west, whose connections with the divinity of the setting sun, the master of the underworld, have been explained above.

The contents of these dolmens include pottery, of various sorts and fashions, that is, belonging in all probability to different times. Such a conclusion about their dates is also borne out by the implements found in them, which range from purely neolithic implements to the implements of the Iron Age. The dolmen at Chettipalayyam, Coimbatore District, had beneath it a "highly polished, black ceramic ware", which is further described in the following words: "It is an exquisitely finished, stone-hard ware of such perfection that its appearance is almost that of black marble; and as regards the strength and fineness of clay it can only be compared with China."⁴³ It will be remembered here that this particular ware technically called the Northern Black Pottery (or N.B.P.), is generally supposed to belong to the period of the Early Mauryas, especially of Asoka. We shall later on draw attention to a piece of evidence, which would show, that this beautifully glazed black pottery, popularly attributed to the days of Asoka, may have been originally an accessory of the implements of the beginning of the Iron Age in India. This would probably show the Iron Age (or Mauryan ?) character of the dolmen at Chettipalayyam; and it must have taken some time for such pottery to penetrate to, and become popular in, the extreme south of India, after its introduction in the early days of the Iron Age in the northern India. It is not impossible that this penetration into the South was accentuated

42. Mr. K. K. Sen Gupta points out that "in the Cochin State, the entrance to the dolmens is invariably directed to the west." To indicate the popularity of the dolmens in the districts along the western coast of South India, it may suffice to point out that in the Walawanad (or Vallavanād) Taluk of the Malabar District only two out of the fifty-one villages, noted by Robert Sewell in his *Lists of Antiquarian Remains in the Presidency of Madras* (Vol. I, p. 248f.) do not contain dolmens.

43. An. Bibl. Ind. Arch. (for 1934), p. 3

by the expansion under the Mauryas of the earliest Iron Age empire of India, that originated in Magadha. In Mysore, Coorg and other Kannada (or Canerese) speaking districts, these dolmens have been locally called *Pandu-mane* or *Pandava-mane* (Houses of the Pandavas), or, at times, *Moriyara-mane* or *Moriyara-angadi* (Houses of Mauryas). No logical explanation has yet been offered of the latter terms, which connect them with the Mauryas. But in view of certain facts, stated above, it would not be illogical to explain that they were so termed, because they were first brought into South India, or at any rate popularized there, as a result of the expansion of the Mauryan empire into the South. We have shown elsewhere that the Mauryan empire, that grew out of the nucleus of the state of the Saisunaga dynasty, represents in reality the culmination of the political effects of the beginning of the Iron Age in the Gangetic valley; and that the exquisite finish of the Asokan pillars, crowned by animal figures, represents similarly the artistic culmination. It is possible that the same age, that was responsible for the introduction into India of the "religious megaliths" of Asoka, his pillars, etc., was also responsible for the introduction of the funerary megaliths into the South. Until a systematic study of these latter monuments has been carried out in an intensive and extensive manner, the suggestions, offered by us here, can by no means be regarded as certain; and though quite a number of South Indian megaliths may have belonged to the Iron Age, it is quite possible that none really originated during the Neolithic Age at all.

3) The Croinlechs (- "bent slabs"): Although this term is often (and more accurately) applied to the dolmens, having three or more uprights, it is sometimes also applied to what are, perhaps, more intelligibly called "stone circles". Here it would be best to quote the authoritative opinion of Sir J. E. Lloyd: "cromlech= curved stone, sheltering stone, is a genuine Welsh word found in the Bible and in place-names, which has been misinterpreted by Breton scholars as 'a round or circle of stones'."⁴⁴

4) The "Stone Circles": These are found to be "modelled on the primitive dwelling, that ring of stones corresponding to the fence round the neolithic "hut-circles", or to the stones, which prop up the turf-covered houses of the Lapps."⁴⁵ They are often miscalled Druids' Circles, Giants' Graves, Odin's Stones etc. Miss

⁴⁴ R. Munro in E.R.E. IV, p. 468, i, endorses the opposite viewpoint, making it an equivalent of stone-circle.

⁴⁵ Clodd, *Primitive Man*, p. 126

V. C. C. Collum has adduced a deal of evidence to prove the connection between these "relics" of "Druidism" and the Mother Goddess cult, among the Celtic-speaking tribes.⁴⁶ The "Stone Circles", like those of Stonehenge etc., are often oriented to the mid-summer sun-rise: Their connection with solar worship and primitive calendar is thus established. Occasionally, a single menhir is found in the centre of a stone circle.⁴⁷ The great stone circle at Stonehenge in Wiltshire, with its five trilithons, has been correctly characterized as "one of the most impressive structures in the world."⁴⁸ In this context, we may also quote the following from Mr. H. G. Wells: "There are traces of such large communities of (neolithic) families in Wiltshire in England; for example, the remains of the stone circle of Avebury near Silbury mound, were once the 'finest megalithic ruin in Europe.' It consisted of two circles of stones surrounded by a larger circle and a ditch, and covering altogether twenty-eight and a half acres."⁴⁹ It is pointed out by other scholars that outside the stone-circles of Avebury, Stonehenge, Arbor Low etc., there are ditches surrounding them.⁵⁰ A number of stone circles have been found in the region round about Sinai.

Stone Circles have been found in a number of localities in India, especially in South India. Some well-known ones have come to light at the famous pre-historic Iron Age site of Perumbair in the Chingleput District. In the centre of each of these circles, "was deposited either a pyriform urn or a pottery cist or a sarcophagus supported on three rows of short legs."⁵¹ Another pre-historic Iron Age site, Kaniyampundi (Coimbatore District), has also yielded "several groups of deposits, each within a stone circle of boulders. The tomb was supported along the four sides by stone slabs, which yielded pottery vessels, some with cuplike lids and iron implements."⁵² Some more "Stone Circles" were found in the nearby locality, viz Sirumugai, which has yielded other forms of sepulchral monuments as well.⁵³ This is also the case with Gajjalakonda in the Kurnool District and Dharanikota-Amaravati in Guntur District. As Mr. K. V. Subrahmanyam Aiyar has pointed

46. *The Tresser Iron-Age Megalithic Monument* (1935).

47. E.B. (14), II p. 245f.

48. Isaac Taylor, *The Origin of the Aryans*, p. 177.

49. Wells, pp. 107-108.

50. ERE, IV, p. 468, i.

51. *Revealing India's Past* p. 115.

52. Ibid.

53. Ibid., p. 116.

out, these Stone Circles are mentioned in an early Tanjore inscription as karkidai (*kar*, stone; *kidai*, circle).

In northern India, Stone Circles are known to have existed at Deosa or Devsa (identified by us elsewhere with the ancient Devasabha), in Jaipur State,⁵⁴ and in the District of Usufzai.⁵⁵ They have also been found near Khairwarra in Wardha District (C.P.).⁵⁶

5) The "Tumuli": These are best defined as "earthen sepulchral mounds," for they include numerous varieties of all sorts of description. They are often called "barrows" (= "hills"). These "sepulchral hills" are generally described as being of two types, round and long. A whole dolmen is sometimes found buried in a *tumulus*.

Some such *tumuli*, obviously belonging to later times, are found to possess "passage-graves" or "corridor-graves", access to the dolmens being obtained by corridors of upright stones. The following from Prof. Edward Clodd will in this context be found interesting: "Some of the more important *tumuli* are as much as four hundred feet long, and, in certain instances, are approached by an underground gallery leading to the sepulchral chamber resembling the passage to the yurts of the Siberians and the "gamme" or underground dwellings of the Lapps. The primary interments in the long barrows are of the long-headed Iberians exclusively:⁵⁷ the bodies being buried either at full length or in a crouched or contracted posture; resting on the haunches, as was the custom among the ancient Peruvians, and as is the custom among the Andaman Islanders. This probably represented the squatting position of the deceased during life. Everything, it must be remembered, was done to make the grave a copy of the house of the living, and to surround the corpse with objects familiar to it in life—in short, to make him feel "at home", and thus "lay the ghost". So the long barrow is modelled on the long-galleried cave."⁵⁸

It is generally supposed that in Europe, this burial custom continued until the advent of the "beaker-folk", who are supposed

54. Arch. Surv. Ind. Rep. (1878).

55. JASB. (1870), XXXIX, p. 58f.

56. Proc. ASB. 1871, p. 238f.

57. Compare E.B. (14), III, p. 145. Rangacharya, *History of Pre-Musalman India*, Vol. I: *Prehistoric India* (Madras, 1929), p. 111:—"Some of the European long-galleried *tumuli* are as many as 400 feet long and approached by an underground passage to the sepulchral chamber."

58. Clodd, *Primitive Man*, p. 109f.

to have introduced, or at any rate extensively used, the round barrows. One of the forms of the latter, known as the bell-barrow, consists of a large mound encircled by a ditch and has some other adjuncts, the whole giving it the form of a bell.⁵⁹ From one authority we learn: "The Celts must have lived in huts or pit dwellings on the model of which the round barrows are constructed. In the long barrows metal is absent, and pottery is rare, while the presence of pottery is a distinctive feature of the round barrows, and bronze is not unknown."⁶⁰ Out of 485 round barrows exhumed and examined by Mr. Canon Greenwell, only 23 had bronze; while out of 241, examined by Mr. Mortimer, 26 had that metal. They contain skulls with a mean cephalic index of over 80—the same as that of the Celts.⁶¹

6) The "Stone-cists" (or "Stone-kists"): These consist of small chambers of various sizes, often buried under the *tumuli*, and with no passage to the outside. Evidently these also belong to later times, and they are found to contain ashes or other mortuary relics.

In India, as in Mesopotamia, the cists (kists) appear to have been made not only of stone, but also of terracotta; witness, for instance, those at Pallavaram, Perumbair, Dadampatti and other places. Those of stone have been found at Brahmagiri, Raigir (Hyderabad State),⁶² and other places. Mr. Coggan Brown says: "There is a very remarkable similarity between two oblong terracotta sarcophagi standing on short legs, found at Pallavaram in the Madras district, and probably of Neolithic Age, and certain terracotta coffins discovered near Baghdad, and also between the latter and more developed and ornamented Etruscan terracotta coffin-tombs. This similarity of interment in earthenware coffins, identical in shape, size and material, has given rise to interesting speculations connecting archaic Indian civilization with that of Babylonia and Assyria."⁶³

Mr. Rea, who discovered some big sarcophagi at Perumbair, observes: "They are generally oblong cists of thick coarse red pottery, rounded at each end and on the cross section of the bottom, and supported by two or three rows of short roughly-shaped cylindrical legs. These legs are hollow and sometimes have a hole

59. E.B. (14), III, p. 145.

60. I. Taylor, *The Origin of the Aryans*, p. 78.

61. Ibid., p. 81.

62. Indian Science Congress Association: *Silver Jubilee Vol. (1938)*, p.

312.

63. Brown, p. 7.

perforated in the inner side for drainage of moisture. They are generally covered by an elongated dome-shaped lid.”⁶⁴ What is to be specially noted is that it is not a far cry from these elongated and oblong terracotta cists, to pot-burials, or “urn-burials”, as they are often called.⁶⁵

In another place, Mr. A. Rea has described the funerary urns found by him in the Tinnevelly district, as being “large, one-legged, elongated, globular pots of thick red earthen-ware, averaging less than a yard in diameter by a slightly greater height.”⁶⁶ Referring to his previous finds, he says that similar ones were found at Pallavaram etc.⁶⁷ Rao Bahadur Krishnamacharlu describes these “legged vessels” as being of special interest as they strongly resemble in shape some of the vessels found in the ruins of Troy.⁶⁸ When among the Tinnevelly urns, the skeletons were complete, the urns were “always of large size, being nearly 3 feet in diameter.”⁶⁹ Dr. R. Caldwell⁷⁰ and Mr. Poduval⁷¹ note in some places like the Travancore State etc., the existence of glazed or polished pottery in the funerary urns, the former noting “a monster urn, 11 feet in circumference.”⁷²

Lastly, we may point out that the terracotta sarcophagi or earthen cists appear to have been mentioned in the Rig-veda as “earthen houses” (*mrin-maya griha*), and that cists in general, especially those of stone, appear to have been mentioned in the Atharva-veda as “under-ground houses” (“*bhumi-griha*”).⁷³ In a Tamil inscription of the 13th century, the latter appear to have been mentioned as *kurakkuppudai*.⁷⁴

7) The “Cairns” (“Heaps”) are the same as the sepulchral piles or mounds of unmortared stones. Generally speaking, it will be profitable to confine this term to “stone heaps”, as against the

64. A. Rea, *Catalogue of the Prehistoric Antiquities from Idichanallur and Perumbair* (1915).

65. According to Prof F. Sidney Hartland “The burial of cremated bones in urns has been common wherever cremation was practised by peoples, acquainted with the art of pottery.” (ERE, IV, p. 425, 1.)

66. AR-ASI, (1902-3), p. 118f.

67. JASB. (1888), pt. 1, p. 53.

68. *South Indian Urn-Burials and their Affinities*.

69. AR-ASI (1902-3), p. 118f.

70. I.A. (1877), p. 81.

71. *Revealing India's Past*, p. 299f.

72. *Revealing India's Past*, p. 113f.; I.A. (1877), p. 81.

73. R.V., VII 80, 1.—‘मो षु वरुण मृन्मयं गृहं राजन्धं गमम्।’

A.V., V. 30. 14:—‘वेत्यामृतस्य मा नु गान्मा नु भूमिगृहो भुवन्।’

Cf. *Vedic Index*, I, p. 8

74. *Ancient India*, 2, p. 9f.

"tumuli" or "barrows", that may be restricted to "earthen mounds", or "earth-and-stone mounds".

Many of the above-mentioned structures, as stated above, continued to be in vogue in the "Copper or Bronze Age", and in some places (like India) *even in the prehistoric or early historic Iron Age. Wiltshire (in England) may be instanced as one of the most important areas, wherein many types of the megalithic monuments mentioned above could be witnessed. Some of the bell-barrows at Wiltshire are known to have yielded "rich burial goods of gold and bronze".⁷⁵

Population increased at a great rate, villages springing up everywhere beside the lakes, and along the river-banks. But when population grew in excess to that which the neolithic economy could support, this must have given rise to a number of factors, including (as we have argued elsewhere) the inability of the living to meet the requirements of the dead, at least in some regions of the world. Thus, we find that the system of cremation, wholesale or partial, came to be introduced in some regions, whereas a number of others continued to follow this or that system of burial, or even the earlier (palaeolithic ?) practice of the exposure of the dead to the vultures, jackals etc. Thus, already before the end of the Neolithic Age, and throughout the "Copper or Bronze Age", we find quite a number of practices current in the sphere of the disposal of the dead.

As a typical instance, we may quote the following from Dr. Wallis Budge, about the various systems of the disposal of the dead in the neolithic Egypt: "The graves at Nakadah, a prehistoric site lying a few miles to the north of Luxor (Thebes), are considered the most typical of the period Graves of the New Stone Age are found just beyond the cultivated land, on the edge of the desert among the sand and stones; the (cultivated) land even in these early days was far too valuable to bury the dead in. The body is sometimes wrapped in a reed mat, somewhat resembling the coarse "bark-cloth" of modern African peoples, and sometimes in the skin of an animal, probably of the gazelle family. In historic times, the dead man was passed through a bull's skin, and many African chiefs are buried in bull's skins to this day. Sometimes the body was laid in a box or wicker-work case, and sometimes a huge earthenware pot was inverted over it, to prevent it from being crushed. It lay on its left side with the legs drawn up and the knees almost touching

the chin; the hands are held up near the face. This is the position which a child has before birth.”⁷⁶

Funeral Customs in Indian Literature

In Vedic literature, we come across the terms like “fire-burnt” and “non-fire-burnt” (आग्निदग्धाः and अनग्निदग्धाः), which signify two chief methods of the disposal of the dead, at a time, which is, however, far removed from the Neolithic Age. There are two other methods known to the Vedas: They are referred to by the terms परामाः and उद्धि used in the Atharva-veda. According to the authors of the *Vedic Index*, “Burial was clearly not rare in the Rig-vedic period: a whole hymn (R.V., X. 18) describes the ritual attending it.”⁷⁷ Thus, as in Egypt, so in the Vedic India, a number of customs, relating to the disposal of the dead were prevalent, one of them, as we have shown elsewhere, being the custom of mummification, that is alluded to in a passage in the *Asvalayana-śrauta-sutra*.⁷⁸

En passant, we shall note the opinions of some eminent scholars in connection with the Rig-Vedic sukta X. 18, referred to above. The view, that one of the authors of the *Vedic Index*, Dr. A. A. Macdonell, expresses at another place, viz in his *A History of Sanskrit Literature*, differs somewhat from that expressed in the former work. In the latter, he observes: “Finally, one of the most interesting subjects with which the Grihya-sutras deal is that of funeral rites (antyesh्टि) and the worship of the Manes. . . . Generally after the tenth day, the bones are collected and placed in an urn, which is buried to the accompaniment of the Rig-vedic verse, “Approach thy mother earth.” (X. 18. 10).⁷⁹ Dr. M. Winternitz, commenting on the same sukta, states: “As we learn in the books of ritual, in ancient India, the bones were collected after the cremation and placed in an urn, and this was buried. Accordingly these verses could have been uttered at the burial of this urn of bones. However, I do not consider this probable.”⁸⁰ He takes them to refer to the burial of the whole body itself, rather than to that of its collected fragments. A third view slightly differing from this was expressed long ago by Prof. Roth,

76. E.A. Wallis Budge, *Egypt* (Home Univ. Lib. 1934), pp. 29-30; see supra, pp. 111f.; 120f.; etc.

77. *Vedic Index*, I.p.8. Macdonell, *Hymns from the Rig-Veda*, p. 88. Winternitz, *A History of Indian Literature*, I, p. 96.

78. M G., p. 16.

79. Macdonell, *A History of Sanskrit Literature*, p. 256.

80. Winternitz, *A History of Indian Literature*, I, p. 96.

who, in an article in the *Journal of the German Oriental Society*, (VIII, p. 467), tried to show that "the ritual so far from having induced the hymn (X. 18), totally changes it. The hymn was written for a burial ceremony. The later ritual knows only cremation."⁸¹

A passage in the Satapatha Brahmana describes the custom relating to the disposal of the dead body of a Yajamana (Sacrificer), who was probably also the head of a rich household. According to this custom, three (sacred) fires were to be kindled in three different pans (sthalis), all the foul matter in his intestines was to be removed, the inside was to be washed and anointed with clarified butter (ajya or ghee), and seven pieces of gold (i.e., gold-coins, probably popularly known as "hiranyas") were to be scattered over the corpse. And before kindling the fire, the following sacrificial implements, utensils and furniture were to be placed over or near different parts of the dead body: an Upabhrit, a Juhu, a Dhruva, an Agnihotra-havani, a couple of Sruvas, two Prasitraharanas, a Chamasa, two Surpas (or winnowing baskets), a Patri, a Samya, a couple of Vrisharava (? mallets, hammers), an Ulukhala and a Musala (a mortar and a pestle), some sacrificial vessels and a Sphya. Equipped with these, the Sacrificer was supposed to "conquer" the next world (i.e., enter heaven), but the stone and earthen vessels belonging to him were to be handed over to a Brahmana.⁸²

Mr. R. S. Panchamukhi draws our attention to the following literary references to partial burials: "The Satyashadhiyas of the *Vajasaneyi Samhita* of the *Sukla Yajurveda* gives a graphic description of the funeral ceremonies and the burying up of cremated bones in an earthen pot underground. It also refers to the raising of an edifice of bricks over this burial—the shape of which varied according to the number of sacrifices the person performed." In the Satapatha Brahmana occurs the passage: 'या असुर्याः प्राच्यास्त्वद् ये त्वत्पारमण्डलानि कुवंते' The word 'परिमण्डलानि' (occurring in this passage) is explained by Sayana as "smasanani".⁸³ One can, however, visualize in this term a reference either to the stone-circles or to the cairns.⁸⁴ Mr. Panchamukhi believes that the word पाराष used in connection with the dead in RV.X.18.4, alludes to stone-circles.

81. Hopkins *The Religions of India*, p. 271.

82. *Satapatha-Brahmana*, XII, v.2.1-14.

83. *Journal of the University of Bombay*, vol. XIV, pt. iv. (1946), p. 17.

84. Winternitz, *A History of Indian Literature*, I. p. 193, states that here we have a reference to "the raising of a burial mound".

If the passage in the Satapatha Brahmana, alluded to by Mr. Panchamukhi, contains a reference to a custom of the "eastern Asuras", there is another in the Chhandogya Upanishad, to a similar usage prevailing among the Asuras: "They deck the body of the deceased with fine garments and ornaments, thinking that thereby they, indeed, conquer the next world."⁸⁵ These references become interesting in view of the equation, (suggested previously by a number of scholars including ourselves)⁸⁶ between the Asuras and the Assyrians. That the Assyrians had such customs of burials is well-known; but these references become all the more interesting in view of the suggestion given by some scholars that the Aryans came across the Assyrians even in parts of ancient India, during the Copper and Bronze Age.

From Buddhist literature it is well-known that "the ancient inhabitants of Vaisali disposed of their dead sometimes by exposure, sometimes by cremation, and sometimes by burial."⁸⁷ The place where they were disposed of by exposure was called Sivathika or Amaka-susana.⁸⁸ References to this practice of exposure of the dead are to be met with in Therigatha, Mahasivala Jataka, Maha-sutasoma Jataka, etc. It is possible that this practice was followed by the people belonging to some of the lowest rungs of the social ladder, who could not afford the expenses of a decent burial or cremation.

The Mahabharata also contains a number of passages, describing various methods of the disposal of the dead. One of the most interesting of these describes at some length the cremation of king Pandu, father of the Pandavas. Along with various sorts of unguents, ointments and applications, we find him covered by "white native clothes" and sprinkled over by waters from "golden pots".⁸⁹ The Southern Recension of the Mahabharata, be it noted, mentions in this connection two golden pots, a water pot (which must be an earthen utensil), an axe, tila (or sesame), tandula (rice), etc.⁹⁰

Prof. Hopkins, one of our best authorities on the Great Epic,

85. Chhandogya Up., VIII. vii. 5:— 'असुराणां श्वेषोपनिषद् । प्रेतस्य शरीरं भिक्षया वसनालंकारेण संस्कुर्वन्त्येतेन ह्यमुं लोकं जेध्यन्तो मन्यन्ते ।'

86. J.A. (1903), p. 233.; M.G., *passim*, p. 220.

87. Rhys Davies, *Buddhist India*, p. 80.

88. Theravali, Stanza 303.

89. Mbh. (B.O.R.I. edn.), I. 118. 1f., esp. 18-22.

90. Mbh. (B.O.R.I. edn.), I. p. 915, App. I, No. 69, after I.116.30. I. 118. 22, fn. mentions pots full of clarified butter (*ghrita*).

states: "In the matter of the burial of the dead, one finds, what is antique, that although according to the formal law only infants are buried and adults are burned, yet was burial known, as in the Vedic age. And the still older exposure of the (dead) body, after the Iranian fashion, is not only hinted at as occurring here and there even before the epic, but in the epic, these forms are all recognized as equally approved: 'When a man dies he is burned or buried or exposed' (*nikrishyate*) it is said in 1.90.17; . . ."⁹¹ Some of these funerary customs, described at length in the Sutra literature and in some passages in the *Mahabharata*, are comparable to the rites followed at "the funeral of Patroclus, so admirably described by Homer." (*Iliad*, xviii and xxiii). To follow the poet's order, "The corpse of Patroclus was washed with hot water (*Iliad*, xviii.345f.), then anointed with unguents and oils, and covered from head to foot with a thin linen cloth. . . . A funeral meal follows the weeping. The corpse is to be cremated. . . . When the pyre is ready, . . . Achilles sacrifices his hair, . . . On the following day, the body of the deceased is placed in the midst of the pyre, and is covered from head to foot with fat taken from the oxen and sheep which have been sacrificed; alongside are placed the dead animals and amphorae of honey and of oil. . . . In the morning, the order is given to extinguish it with libations of wine, to pick out the calcinated bones of the dead from among the other bones of men and animals," (placed along with Patroclus, whose body was placed in the centre of the pyre), "and to enclose them in a cinerary urn between two pieces of fat. Finally, a tumulus of earth receives the urn, and is the sepulchre of Patroclus."^{⁹²} Prof. Sergi adds: "In the classic period, the dead body was washed, anointed with unguents and oil, and wrapped in a white garment. . . . At what appears to be a late period, a piece of money was placed in the mouth of the deceased. . . . A honey cake was buried with him."^{⁹³}

Some South Indian scholars have also shown that a number of early South Indian works, including *Manimekhala*, *Tolkappiyam*, *Pura-nanuru* etc., contain a number of allusions to the practices of burials of various sorts.^{⁹⁴} On the whole, even from literary evidence it would appear that the practices of burning and exposure of the dead were more common in northern India, while the practice of burial was more in vogue in southern India. It must not,

⁹¹. Hopkins, *The Religions of India*, p. 364.

⁹². ERE, IV, p. 473. ii.

⁹³. Ibid., p. 473. ii-474. i.

⁹⁴. JRAS. (1899), p. 225f., especially p. 266f. *Revealing India's Past*, 114f., K.R. Srinivasan, in *Ancient India* (July, 1946), II, p. 9f.

however, be forgotten that all the main practices, mentioned above, were known both in northern and in southern India, i.e., those that were in vogue in the north, were at least known in the south and *vice versa*. Thus the following famous lines from the *Manimekhala* would show that the author of this work knew that various sections of the populace followed different customs such as cremation, casting away (or exposure), pit-burial, cist-burial, and urn-burial:

Suduvor-iduvor-todu-kulippadupor
Talvayinadaippor-talilyirkavippor.

The End of the Neolithic Age

About the later phases of the neolithic society, the best description comes from the pen of Prof. V. Gordon Childe: "The growth of neolithic population was eventually limited by contradictions in the new economy. The expansion in numbers involved expansion in space. Additional families could only be supported by cultivating fresh plots and finding fresh pastures for growing flocks and herds. Food-producers within the limits of barbarism just had to spread. Each self-sufficing village must keep budding off daughter villages. The world-wide expansion of the neolithic economy bears witness to this process."⁹⁵

The ever-growing need of the neolithic man of more and more space and the consequent lack of it felt by him, together with other factors alluded to above, were responsible for the tremendous growth of primitive armament by the end of the Neolithic Age. Prof. V. Gordon Childe points out that "the earliest Danubians seem to have been peaceful folk. Weapons of war as against hunters' tools are absent from their graves. Their villages lacked military defences. It is no accident that the latest village of Koln-Lindenthal was defended by elaborate fortifications and that weapons were buried in contemporary graves. In the later phases of the neolithic period in Europe, armaments in the form of stone battle-axes and flint daggers became the most conspicuous items of funerary furniture."⁹⁶

95. Childe, WHH, pp. 59-60.

96. Ibid , p. 60.

PART III

COPPER AND BRONZE AGE

CHAPTER XI

COPPER AGE

THE art of quarrying, which must have been the parent of mining, appears to have been known at least from the Mesolithic Age. Such quarrying was originally done for flint and similar material. Some of the shafts, sunk in the flint-bearing strata, seem to have gone as far as 35 to 40 feet deep into the bowels of the earth.¹ It is while penetrating into such shafts that man must have learnt the first lessons in mining; but it is equally true that the tools used for quarrying flint would be of little or no avail in negotiating rocks containing copper ore. Nor is it quite easy to obtain refined copper. Copper can be obtained in an unpurified, crude form, by smelting copper ore; and this has to be refined by heating it excessively with charcoal and stirring it with poles of young wood. It is natural to assume that the various processes used in obtaining refined copper were learnt by man only by degrees. Thus the process of smelting must have been learnt, long after, one would think, copper was "quarried" by man, from the interiors of the quarries, from which flint was dug out. The knowledge of smelting must have taken some considerable time, and its perfection and utilization for refining the metal lumps were not altogether an easy process for the primitive man.

The latter was, however, singularly fortunate in one respect. In numerous localities throughout the world copper is found in its native form, not far from the surface of the earth—as, for instance, along the shores of the Lake Superior (Canada), in Hungary etc. It is, therefore, but natural that copper was utilized in the very beginning only as a new stone, and was "quarried" as such. According to one authority, the Red Indians of North America made an extensive use of native copper, for making ornaments, fashioning implements etc. According to another authority, native copper was used at least in southern Alaska, in the regions along the "Copper River", in northern Canada, and in Victoria Land. Again, when the Spaniards invaded North America, they found the Aztecs of Mexico using implements and ornaments, hammered out of native copper, at the time of their conquest. Native copper was found in the ancient world in much larger deposits, than it is today:

quite naturally, therefore, we find its use much commoner than can be generally realized at this date. A number of small objects, like pins, needles, harpoon-heads etc., found at Tepe Sialk near Kushan (at Sialk I and II), and in Badarian and Amratian strata, are found to have been made of native copper.² Implements of copper found at Tepe Sialk and other localities are wrought in the same way as were those of stone during the Neolithic Age, e.g., by hammering, grinding etc.

Where Did the Copper Age Commence?

It is difficult to state with any amount of certainty in what locality exactly the first tools and weapons of the Copper Age were fashioned and brought into social use, i.e., where the Copper Age commenced. That this new industry must have developed into a social factor only in, or in the vicinity of, one of the most advanced centres of neolithic culture is beyond doubt. We have studied above mainly about two of such important centres of neolithic cultures, viz, those that flourished in the valleys of the Nile and the Euphrates. We have seen that in Badari and other localities, pins etc., of native copper were already in vogue during the Neolithic Age, when man had not yet begun using copper tools or weapons. But with the next phase of culture, known as the Amratian, copper axes, chisels and harpoons (in addition to pins, tubes, glazed beads etc., of the former phase) begin to be found. This is one of the earliest Copper Age cultures of the world; and its continuity from the well-developed Badarian culture of the neolithic epoch would lend support to Egypt's claims as the first originator of the Copper Age culture. There are also other factors, which apparently support this claim: "In the Asiatic red-ware regions, a small selection from Egyptian copper-types appear suddenly amid the polished-stone (i.e. neolithic) culture, together with the red-ware pottery."³ It is also pointed out that "the earliest copper objects (of the Danubian region)—flat axe-blades, leaf-shaped daggers, awls and dress-pins—repeat with only slight variation the forms, characteristic of the earliest metal-age in predynastic Egypt, in Syria and in Cyprus."⁴ As to Crete, owing its Copper Age civilization to Egypt, this is apparently conceded by a number of scholars. Thus, Prof. Breasted says: "The little sun-dried-brick villages, forming the Late Stone Age settlements of Crete, received copper from the ships

2. Childe, MAE, p. 65 (NIMAE, p. 72); Childe, P.A., p. 32

3. CAH., I, p. 90

4. Ibid., p. 79.

of the Nile by 3,000 B.C."⁵ Another authority states: "The earliest known (copper) implement (in the Aegean world) is a flat celt, which was found on a neolithic house floor in the central court of the palace of Knossos in Crete, and is regarded as an Egyptian product."⁶

In favour of the claims of Mesopotamia also we have almost equally important points of consideration. At Tepe Gawra and other sites in this locality, the archaeologist is able to show how "township is an eloquent witness of the revolutionary changes caused by the rise of copper as a decisive factor in human history".⁷ At Tepe Sialk (near Kushan), archaeologists came across some of the most primitive metal implements, made of native copper, and fashioned after similar implements of stone and bone; and these included harpoon-heads, celts etc.⁸

When such claims are put forth in favour of either one or the other of these important centres of Copper Age civilization, it is generally taken for granted that the mines utilized by these centres were not necessarily placed in them, but rather in their neighbourhood; since such centres were generally situate in plains, while the mines are generally to be found in mountainous districts. In the case of Egypt, scholars have generally in mind the copper mines of Sinai; but these mines are not far away from Mesopotamia, so that if this was the first centre where copper was unearthed (quarried or mined) for the sake of fashioning implements, then Mesopotamia may be supposed to share the palm of being the earliest to possess the Copper Age civilization, along with the land of the Nile. According to Prof. H. R. Hall, "The Egyptians doubtless obtained their knowledge of copper-working from Mesopotamia by way of Syria, probably through the 'Armenoid' race, which must already have made its appearance in Lower Egypt long before the end of the predynastic period. The land of Magan, which is mentioned in Sumerian-Babylonian inscriptions of the fourth millennium B.C. as yielding copper, if rightly identified with Sinai, would suggest that Babylonians as well as Egyptians obtained copper from that peninsula. It would seem probable that the 'Armenoids', if they also brought copper with them, originally obtained it from further north, the mountains of the modern Armenia, as the Mesopotamians no doubt originally did. When

5. Breasted, *Ancient Times*, p. 27. Vide infra, p. 211.

6. E. B. (14), IV, p. 240

7. Prof. E. A. Speiser, *Excavations at Tepe Gawra* (Smithsonian Inst. Rep., for 1939 and 1940).

8. Childe, P. A., p. 32, etc.

the Egyptians took to using copper, a nearer source of the metal was found in Sinai, and the Babylonians also utilized it, going thither by sea in ship; from the Persian Gulf. 'Magan' means the land of ships, the land to which ships go, . . ."⁹ In the case of Mesopotamia, in addition to Sinai, there lay another centre of copper ore, in the mountainous regions of the north, "comprising Anatolia, Armenia, and Trans-caucasia", where, as Prof. J. de Morgan points out, copper was quite abundant in its native form.¹⁰ After considering the pros and cons of this question, he goes on to state: "Thus, it would seem likely that the knowledge of copper came to Egypt and the Asiatic coasts of the Mediterranean from Chaldea."¹¹

Since the mountains of Persia and Afghanistan also contain copper ore, there is a third possibility that the earliest copper mining was effected in the regions to the east of Mesopotamia, rather than to its north or to its west. If this was so, the valley of the Indus could well vie with that of the Euphrates for the honour of being the earliest to possess Copper Age culture. Since the origin of the Copper Age civilization in the Indus Valley is only a matter for conjecture, as its antiquity cannot be fathomed at present, this third possibility cannot be altogether set aside in our search for the original home of the Copper Age civilization.

Archaeological evidence brings out the fact that during the Copper Age, i.e., before the commencement of the Bronze Age proper, man had learnt the use of a number of other metals, besides copper, if only for the sake of fashioning ornaments, etc. Thus, in addition to copper, the prehistoric caves in Egypt have yielded lead and silver. The Pumpelly Expedition is supposed to have discovered in the so-called "Neolithic Age" at Anau (about 10 miles from Askabad, the capital of Turkmenistan),^{11a} not only some copper, but also some lead. Since in these strata, copper implements are said to have been found, we feel entitled to look upon these as belonging to the Copper Age.

Smelting of Ore

The next problem that man faced, when native copper became rather scarce, was that of obtaining copper from the ore. How he solved this problem in the beginning cannot be told with certainty. It is quite likely that man learnt his first lessons in

9. CAH., I, p. 262.

10. J. de Morgan, *Prehistoric Man*, p. 222.

11. Ibid., p. 102.

11a. Vide infra, p. 211.

smelting, while making his experiments with different soils, in the process of manufacturing pots of different colours, or of manufacturing burnt bricks. It may be that it was some copper-containing ore that he accidentally burnt. Or may be, this was done deliberately by some ingenious brain, to see the results, that followed. Lord Avebury (Sir J. Lubbock), however, suggests that "the secret of smelting was discovered by the chance putting of lumps of copper ore among the ordinary stones, with which they built the fire pits they used for cooking . . . The plant of a prehistoric copper smelter has been found in Spain, and the material of bronze foundries in various localities. The method of smelting revealed by these finds carries out (in the opinion of H. G. Wells) Lord Avebury's suggestion."¹²

Once the process of smelting the copper ore was known, it could be easily applied to other ores; naturally, it was not long before mankind came to know many other metals besides copper. Once smelting is known, it is also easy to try mixing up various metals, in whichever proportion one wanted. Therefore, there is little or nothing surprising in the fact that the Age of Copper did not last very long, and that it was soon supplanted by the Age of Bronze: Pure copper is very soft, so that the tools, made of it, get easily blunted, and they have to be hammered out again. But only a little mixture with another metal, namely tin, hardened it and gave it such strength, that this alloy became immediately popular. It was, however, only through various casual and deliberate experiments, that man, at long last, appears to have struck at the correct composition of the alloy, that we know as "bronze": The supposedly correct composition of this alloy (in its supposedly correct form) is copper mixed with tin, in a certain fixed proportion (of approximately 9:1).

Terminological Inaccuracies, and Spread of the Copper Age Culture

In the light of the discussion about the meaning of the "ages in archaeology" given in a previous chapter, the distinction made by us above between the cultures of the Neolithic Age, the Copper Age, and the Bronze Age should become, it is hoped, intelligible. It is also hoped that the confusion, that is often created by the slovenly and "free-will" use of unscientific terminology, would become to a large extent clarified, or at any rate avoidable. The

12. Wells, p. 104.

reality of a distinct Copper Age culture is asserted by archaeological finds from a number of countries, although, to our grief, it has not been so specifically realized or mentioned by the workers in that field.

Thus, Anau is not the only place, where copper implements are said to have been found in "neolithic" strata. In similar "neolithic" strata of the earliest township at Susa (Susa I), some implements of copper, e.g., chisels etc., have been found.^{12a} And these are closely allied to those found in some pre-dynastic tombs of Egypt. In Mesopotamia and the Near East generally, such strata are usually reckoned not as "neolithic", but as "chalcolithic."¹² Describing the culture of such strata, Prof. Langdon observes at one place: "Flint and obsidian gravers and borers characterize the lower strata of the culture at Susa, and are found also in the lower levels of all the oldest Sumerian cities; but none of these foundations show a true neolithic culture. The flint knives, scrapers, saws, borers, arrow-heads and other stone implements of Susa, Lagash, Ur, Eridu, Nippur and Umma are found mingled with rude copper implements."¹⁴

The reason that here the stone and copper implements are found mixed together, is held to justify the name "chalcolithic". But there is no unanimity about this either. At Tell-i-Bakun (near Persepolis), Prof. Herzfeld and others discovered in the earliest strata (viz Bakun B I), a type of culture which they have termed "epi-neolithic" or simply "neolithic", although it has yielded copper implements. There are others, who call the later developments of the Copper Age culture as represented by Sialk III "chalcolithic culture". Scholars like Prof. Garstang speak of a "proto-chalcolithic" culture as dividing the (true) neolithic culture and the "chalcolithic" culture in the Cilician plains.¹⁵ At Hassuna, the neolithic culture strata, which do not betray any knowledge of copper are called by Dr Lloyd and Safar "proto-chalcolithic." On the other hand, Sir Leonard Woolley looks upon the "neolithic", "chalcolithic" and (developed) Copper Age cultures as representing the succeeding stages of human culture at Atchana-Alalakh. It is apparently out of desperation that Prof. Daniel is led to call

12a. Vide supra, p. 208.

13. Finegan, pp. 13f. 121, 134, etc.

14. CAH., I, p. 361.

15. Prof Garstang would otherwise classify these cultures as a first Neolithic culture (at levels X to XVII), a second Neolithic culture (at level IX), and a third Neolithic culture (at level VIII)—thus equating the "proto-chalcolithic" and the "chalcolithic" cultures with the last two respectively. See Daniel, pp. 218, 223, etc.

"the earliest food-producing" culture in Anatolia by various names such as "Chalcolithic", or "Cuprolithic or Aeneolithic or Mixoneolithic—whichever term is favoured".¹⁶ At Anau, the full-fledged Bronze Age culture of Anau III which is immediately succeeded by the Iron Age culture of Anau IV, has been characterized by Dr. Schmidt as "the brilliant epoch of the Copper Age in Transcaspia." In the island of Cyprus, the true "Neolithic Age" supplanted, according to some archaeologists, by a "sub-neolithic period", which witnessed the introduction of copper, and which is often called by other archaeologists "chalcolithic period". In India, the words "chalcolithic culture" are used to describe the full-fledged Bronze Age civilization of the Indus Valley cities of Mohenjo-daro, Harappa etc.¹⁷ There are also scholars like Prof. S. K. Chatterji, who would prefer to call the period that produced this Indus Valley culture "sub-neolithic age".¹⁸ In the so-called "Upper Neolithic" period of Crete, the use of copper objects appears to have been known, so that according to our definition, that period should be called "Copper Age."

Yet it was as early as A.D. 1875-76, that Mr. Chantre and M. Francois von Pulszky recognized, probably independently of each other, in France and in Hungary respectively, a phase of human culture that was post-neolithic and pre-Bronze Age culture and they distinguished it as belonging to the "Copper Age". About ten years later we find Sir William Wilde and Oscar Montelius distinguishing the Copper Age and the Bronze industries in different parts of Europe, although the latter proposed to call the Copper Age "Bronze Age I".¹⁹

And among modern scholars, there are at least a few like Prof. Albright, who speak of the difficulties facing the archaeologists in drawing a line between the Neolithic Age and the Early Chalcolithic Age²⁰—difficulties which arise out of a lack of scientific definition, or "terminological inexactitude". Such difficulties can be at least partially eliminated by a scientific explanation of the meaning of the beginning of an "Age" in archaeology. Scholars like Prof. Albright even admit, occasionally though, that "there are also objections to the name 'Chalcolithic', . . . ; actually flint continued in use for making knives until the end of the third

16. Daniel, p. 220

17. Vide infra, Chapter XIII

18. IHQ, I, p. 177.

For many of the afore-quoted examples, the writer is indebted to Prof. Daniel's work, entitled, *A Hundred Years of Archaeology*.

19. Daniel, p. 146 f.

20. Albright, p. 65.

millennium, and sickle-edges of flint were still used down to the beginning of the Iron Age."²¹

It must, however, be admitted that despite any amount of accuracy in excavations, there is bound to remain a certain amount of uncertainty about the exact beginning of the Copper Age at any locality, where the culture of the latter age is not introduced by just one wave of conquerors, but is introduced by means of trade. Even in the cases where it is introduced by conquerors, it may not always be possible to determine the exact period of its introduction if the conquerors themselves had not advanced far enough in the culture of that age or if they were unable to make their cultural influence felt immediately after the conquest.

Copper Age Cultures in Mesopotamia

We learn that a number of objects, unearthed by Prof. Langdon at Eridu and by Dr. Hall at al'Ubaid (or al 'Obeid), point to the use of pure copper "even in late Sumerian times."²² In these localities bronze came into vogue apparently long after the introduction of copper, so that there should be no difficulty in recognizing a distinct Copper Age in Mesopotamia. This Age can be further sub-divided into periods, marked by different cultural strata.

Halafian Culture

The earliest of such cultures is known as "Halafian" after the site of Tell Halaf on the Khabur.²³ Important stations of this culture are to be found at Tepe Gawra, Samarra, Carchemish, Sialk (at Sialk II), Arpachiyah (Levels VI-X),²⁴ Sakjegozu, Tell-i-Bakun (viz., Bakun B II), Tell Chagar Bazar, Anau (at Anau I A), etc. The Halafian strata have yielded some extremely thin and very fine painted pottery, with something of a glaze-like appearance, and a cream-coloured or buff-coloured slip. This pottery is hand-made, and is said to rank among the best of hand-made wares.

The use of copper apparently yielded a large amount of leisure. This earliest Copper Age culture has revealed examples of closed kilns, houses of moulded bricks, dried in the sun, con-

21. Albright, p. 65.

22. CAH., I. p. 546; cf. 87, 361, etc.

23. Oppenheim. *Der Tell Halaf, eine neue Kultur im ältesten Mesopotamien*, (1931).

24. M. E. L. Mallowan and J.C. Rose, *Prehistoric Assyria, the Excavations at Tell Arpachiyah, 1933*. (1935).

cave-based spindle-whorls, *Pterocera* shells, beads of carnelians, turquoise etc. Copper objects, though wrought by cold hammering, include a variety of implements, e.g., axes, harpoon-heads etc.; and the metal plough began replacing the wooden hoe, gradually, but surely. Commerce with distant countries seems to have apparently increased during this age, shells being brought from across the Persian Gulf during this and the succeeding epochs. Prof. Childe speaks of a vase from Tell Halaf, which, though "not quite certainly of Halafian age", "seems to have been painted with the earliest representation of a wheeled vehicle",²⁵ carrying a man. This wheel has eight spokes.

Al'Ubaid Culture

The Halafian culture is succeeded by that of al'Ubaid (or al 'Obeid), which may be characterized as the late Copper Age Culture of Mesopotamia. Copper was now being cast to fashion axes, harpoons, and other implements; and mankind had evidently learnt by this time the art of transmuting copper ores of various sorts found in nature into pure copper. This culture is characterized by monochrome pottery with geometrical patterns in lustrous black or dark-brown, on a grey-greenish surface. It was either hand-made or wheel-made. The all-round development of this culture becomes most apparent, perhaps, in the large temples of this period—the largest one at Tepe Gawra (at level XIII) being as large as 40' by 28'. An earlier level (XIX), of the beginning of the al'Ubaid period, is said to have yielded the relics of the earliest religious structure in history. Mud-walls, with mosaics of baked clay, that decorated their surface as well as made their interior waterproof, have been unearthed by the excavator's spade. Clay models of boats and of axe-heads with shaft-holes etc., clay figurines of animals and human beings, clay sickles with teeth of flakes, spindle whorls of clay, perforated weights of clay, are among the clay objects, unearthed in these strata.

A more developed phase of this culture is probably to be found at Susa I (or Susa A), where we come across "an abundance of fragile pottery, painted glossy black and with decorations including geometrical patterns of triangles, rectangles and zigzags, and human, animal and plant designs reduced to almost geometrical forms. Galloping dogs, goats whose fore and hind quarters are triangles, and whose horns are sweeping semi-circles and rows of

25. Childe, WHH, p. 65.

storks, whose bodies are large triangles and whose heads are small triangles, are among the conventionalized designs represented in the sophisticated art of Susa I. Copper mirrors, heads of black and white limestone or imported turquoise and little conical vases, once containing green mineral paint for the eyelids, were also found. Among tools and weapons buried with the dead were stone-headed clubs and copper-headed tomahawks.”²⁶

Some of the important stations of this al’Ubaid Culture that are found in Mesopotamia and the neighbouring countries, include, in addition to the sites mentioned above, the following: Ur of the Chaldees (Tell al Muqayyar or al Mukayyar), Lagash (Shirpurla or Telloh), Uruk, Erech or Warka (Uruk X-XVIII), Eridu (or Abu Shahrein), Tepe Sialk (comprising the earlier strata of Sialk III), Anau (at Anau I B), Tell Uqair (Area IV) etc. Recent excavations at Eridu also confirm that already in the al’Ubaid period, some of the villages in Mesopotamia were growing into large towns and that they had temples, where priest-kings ruled. Dr. Frankfort argues for a continuance of native culture and hence of native populace in Mesopotamia, since the al’Ubaid period up to historical times. This is supported in some measure by the fact that the city-civilization, firmly established by the beginning of the Copper Age at Eridu and other localities during the Halafian period, must have naturally continued to flourish during the various phases of the Copper Age and the Bronze Age. If in successive periods, the culture of these localities was enriched, it was undoubtedly done by the local populace with the co-operation of others of the surrounding regions and a sprinkling of invaders, that may have conquered these localities from time to time. Having once established themselves in cities, the native population could very well imbibe a number of cultural elements, either through trade or through the absorption of a small but powerful foreign element that occasionally ruled over them. With the available evidence, it is not possible to state definitely whether the Sumerians were the authors of the al’Ubaid culture or of any subsequent culture. Nevertheless, it is almost certain that a substantial element of the population of the Copper Age in Mesopotamia, whether Sumerian or pre-Sumerian, continued to remain in that country ever since the Halafian period, up to the beginning of the Iron Age, if not even later.

At Tripolje (Tripolye) near Kiev and elsewhere in South Russia and Ukraine are found the same cultural strata, witnessed

26. Finegan, p. 18.

at Anau I, which belong to the beginning of the Copper Age. It is curious to observe that at both Anau and Tripolye, the dead were burnt and not buried.

The introduction of the Copper Age is observable also in the case of some of the Alpine lake-dwellings.²⁷ Dr. Isaac Taylor states: "In the pile dwelling at Maurach on the Lake of Constance, which belongs to the stone age, among fifty stone implements, the only object of metal was a broken copper axe. At Sipplingen, also on the Lake of Constance, no bronze implements were found, but there were 350 stone axes, and one of copper, very simple in form, resembling the stone axes. And at Gerlafingen, also a settlement of the Stone-Age, on the Lake of Biene, were found two chisels of pure copper of the earliest stone type."²⁸

According to Prof. de Morgan, neolithic weapons like daggers, having beautifully carved ivory handles, depicting all sorts of Egyptian fauna etc., have been discovered near Edfu (Egypt), and these belong to the beginning of the age of the Pharaohs, i.e., to a somewhat advanced stage of the "Copper Age".²⁹ Indeed, the persistence of an earlier implement in later and more advanced times, when (to use modern phraseology) even the man in the street must have become convinced of its lack of usefulness, is a common phenomenon, that is witnessed in different epochs and in all countries. We shall refer to the occurrence of a such a phenomenon at the beginning of the Iron Age. We find that stone implements were in almost common use in a number of localities, even after the advent of the Iron Age, in Greece, in India and elsewhere. It is reliably stated that "many stone arrow-heads have been found on the battlefield of Marathon."³⁰ In India, Mr. Amalanand Ghosh, Director-General of the Archaeological Survey of India, points out that certain "typical neolithic celts" are known to have been found "in the excavations at Bhita (District Allahabad), Rajgir and Nalanda (District Patna), and Taxila, in strata pertaining to the historical period".³¹ In this context, the following observations of Prof. V. Gordon Childe are noteworthy: "The introduction of metal tools is taken by archaeologists as the beginning of a new era in human history, the Bronze Age.³² And, in fact, the discovery of metallurgy (soon after 4000 B.C. in the Near East) and the tools it provided exerted a profound influence

27. *The Origin of the Aryans*, p. 141. See above, p. 169f.

28. De Morgan, *Prehistoric Man*, pp. 215, 217.

29. *Columbia Encyclopaedia*, p. 220.

30. I H Q., XXIV. (March, 1948), p. 17.

31. This term is used in that popular book to signify "Copper and Bronze Age."

on the structure of the society, in particular handicraft separated off from agriculture. But as Engels insisted with exceptional perspicacity seventy years ago, copper and bronze did not replace stone tools; for they were far too expensive.... Only in the Oriental States.... were these metals available in any quantity; among barbarians, they were used almost exclusively for weapons and ornaments.”³²

It is just this paucity of copper and bronze implements and the preponderance of the stone ones during the “Copper and Bronze Age”, that is mainly responsible for the lack of recognition of this age and the prevalence of the term “Chalcolithic Age”, as is demonstrated by us above. The poorer folk had to be content with implements of stone, while the richer section of the populace was equipping itself gradually with those of copper or bronze, throughout the early “Copper and Bronze Age”. This has resulted in a dying age getting an undue recognition from the archaeologists. Nay, even in ancient times, we find that the implements of the Bronze Age copied in stone—and a dying age getting recognition from the ancient—since bronze was difficult to obtain. “Thus it happens that in many regions, especially in the north-west of Europe, flint tools and weapons were for a time made in imitation of those of bronze, and only sporadic finds of early bronze implements occur during the early phase of the Bronze Age.”³³

But this preponderance of stone implements can never be made the reason of non-recognition of Copper Age or Bronze Age. For no invention ousts the older one in a day, and no new economy displaces the older one in a short time. This cannot, however, be interpreted to mean that the new age does not begin or that the old one continues as long as the old implements or old economy and ideology are found to dominate. Nor should such a state of affairs lead us to think that in such times there is a mixture of the old age and the new age. Such a view would land us into mistakes like the one committed by Mr. Amalanand Ghosh, who apparently describes the strata of the beginning of “Copper and Bronze Age”, unearthed at Brahmagiri, as being “a neolithic level”. He himself admits that in these strata, copper implements were used: The “use of copper and bronze in this period to a limited extent is attested by a copper chisel and two thin rods, one of copper and one of bronze”.³⁴ Elsewhere he explains: “While much reliance cannot be placed on the Maski evidence, at Brahma-

32. Childe, ST. pp. 10-11

33. E.B. (14). II, p. 247.

34. I.H.Q., XXIV (1948), p. 16

magiri we encounter the neolithic culture at its last stage, when copper and bronze had already made their intrusion and iron was shortly to oust it".³⁵ Thus, according to him, Brahmagiri had the knowledge of copper and bronze, during the "last stage" of Neolithic Age of that very locality! That is, the "Copper and Bronze Age" must be recognized as a part and parcel of the Neolithic Age!

This is not an uncommon opinion of that writer, for similar views have been often put forth by a number of western and Indian writers. Such an opinion originates from the view that, as shown above, refuses to recognize the change of age with the introduction of the socially effective innovation of advanced or improved implements on a mass scale. It is, however, to the credit of Mr. Ghosh that he does not hesitate to warn us correctly that the polished neolithic implements continued to be used in later times so that some "caution is necessary in accepting the previous collections in their entirety as genuinely neolithic."³⁶

The view that makes the Copper Age only a part of the Neolithic Age, calling it "eneolithic" or "subneolithic" period or attributes the Indus civilization to the "chalcolithic" period, loses sight of the chronological or historical sequence. It cuts at the very root of the scientific conception about the "Ages" in archaeology, elucidated by us above, and deprives one of all logical basis of the division of human history into "ages" "epochs", or "periods", in prehistoric times, when no written documents offer us any landmarks. Indeed, if the Copper Age is to be termed a "sub-neolithic" age, only because neolithic implements continued to be in vogue during that epoch, then even the modern age, in which we still find some primitive tribes clinging to the neolithic implements, can be termed as such. And if there is any justification for the inven-

³⁵ I.I.Q., XXIV (1918), p. 18.

³⁶ Ibid., p. 17. Mr. B. B. Lal of the Department of Archaeology, while writing about the Neolithic Age also maintains as under: "In South India, Bellary District and the adjoining territories of Mysore and Hyderabad seem to have been the focus of the neolithic culture. The 1947-excavations at Brahmagiri brought to light the existence of a Polished Stone Axe culture between the beginning of the first millennium B.C. and c. 300 B.C. The authors of this culture besides using neolithic celts and microliths as their principle (correct this to 'principal') tools, had also the knowledge of copper and bronze, though in a very restricted degree, as is testified by the occurrence of a copper chisel and one each of bronze and copper rods (correct this to 'one rod of copper and another of bronze') in the neolithic levels" (*Archaeology in India*, 1950, New Delhi, p. 29). So copper implements like copper chisels were, in the opinion of this archaeologist, in vogue in the strata of "neolithic" culture! Such results are, one suspects, possibly an outcome of a policy referred to by us in previous pages.

tion of the term "chalcolithic", there would also be found similar justification for the term "ferrolithic" for the beginning of the Iron Age, when the stone implements were still in vogue. Such nomenclature is hardly scientific, and it lays more emphasis on the dead past than on the future, under the garb of recognition of the then existing state of affairs.

To emphasize thus the then existing state of affairs means not to give due recognition to the potentialities of the new age and to divert the mind of the reader towards the dead or dying elements in those affairs. It is to emphasize the past in the present over the future—which is the quintessence of the philosophy of all the "middle-of-the-road" writers. A scientific recognition of the significance of the "ages" in archaeology would at once change the complex of archaeological studies, as well as the very treatment of this subject, which is today considered as nothing more than a specialist's job. People can hardly be expected to take deep interest in a subject, which does not apparently concern their life even in the remotest way; and this is exactly what is really achieved (quite unintentionally, though) by the specialists of today, when they divest their archaeological studies of all the human significance that attaches to the introduction of fresh inventions and the resultant changes that take place in the structure of the society. But, then, the apathy or the antipathy of the people is not the only thing that they achieve; by their scholastic but unscientific nomenclature (e.g., the use of the words "chalcolithic", "eneolithic" etc.), they often confound themselves too, as will be seen from certain instances quoted above and also elsewhere.

Copper Age Implements and Culture

As to the implements of the Copper Age, we learn that "tools and weapons, chisels and axe-heads, spear-heads and dagger-blades, are the only surviving artifacts of the Copper Age and do not show artistic treatment."³⁷ Implements of the beginning of the Copper Age in Mesopotamia, i.e., those of the First Prediluvian culture have been described by Prof. V. Gordon Childe as follows: "But copper also was already employed at this date for the manufacture of axe-heads; the copper flat-celts are solid implements whose blades are splayed out—in a word, thoroughly metallic types. implying a full comprehension of the properties of copper and the methods of working it and a regular and adequate supply of the material. Moreover, a clay model of an axe with a hole for the

37 E. B. (14), IV. p. 240. ii.

shaft from al'Ubaid is almost certainly a copy of a metal original. In this case the First Prediluvian people in Southern Mesopotamia must be accredited with the discovery of the process of core-casting and the invention of the shaft-hole axe. Besides axe-heads, stout chisels, punches and even needles with an eyelet were made out of copper at Susa. And clay models of nails from Southern Babylonia suggest that there at least copper nails were already in use as they were in the immediately succeeding period".³⁸

We have already dealt with the painted pottery culture, which the Copper Age inherited and developed from the Neolithic Age. We have also quoted from Sir Leonard Wooley a brief description of the pre-diluvian "neolithic" culture of al'Ubaid; but the Copper Age development of the same culture is noticed in the following description of the townships of al'Ubaid and Susa, given by Prof. V. Gordon Childe: "Fine garments were woven of linen, and the arts of the potter, stone-grinder and carpenter flourished. Moreover, copper was not only known, but even at Susa its properties as malleable and fusible were fully appreciated and it was employed for tools and toilet articles as mirrors. A vitreous paste was also manufactured. Commercial relations of some sort were sufficiently well-established to bring obsidian in abundance from Armenia to the banks of the Kerkha and Southern Babylonia together with bitumen from the wells near Hit. Lapis lazuli from Central Persia or Afghanistan has been found at Susa I, at Eridu and at Tall Kaudinin in Baluchistan. The dead were carefully buried in regular cemeteries, at Susa lying just outside the town wall. Normally, the bodies were interred in the contracted posture, but sometimes the final burial only took place when the skin had decayed from the bones, in such cases the skull was deposited in a bowl and the long bones in a big tumbler.... Polished stone celts.... were used as axes or adzes"³⁹ during this epoch. Prof. Childe then goes on to show how a number of other stone implements were current during this epoch.

As to the aspect of commerce, that is concerned with distant countries and that came into prominence in Mesopotamia on such an extensive scale with the beginning of the Copper Age, only a brief allusion is made in the foregoing quotation from Dr. Childe. But the following quotations about the pre-dynastic culture of Egypt from the same author afford a glimpse of that aspect about the land of the Nile. Says Prof. Childe about the Early Predynas-

38. Childe. MAF., pp. 132-133.

39. Ibid., pp. 129-132.

tic Period. "Foreign relations were more extensive and regular than before. Besides copper and malachite from Sinai and gold from Nubia, obsidian and (rarely) lapis from Western Asia, coniferous woods from Syria, and emery perhaps from Naxos, found their way to Upper Egypt."⁴⁰ In the Middle Predynastic Period, trade appears to have increased, and in its graves "lead, silver, amethyst and turquoise are found" in addition to the objects found in those of the earlier epoch, the lapis lazuli coming into a greater vogue.⁴¹ During the Late Predynastic Period, timber, malachite, spices etc., were brought from afar⁴²—spices, being brought probably from the countries bordering the Arabian Sea. "In any case, foreign substances in Egyptian graves attest relations extending as far as Persia, Armenia and North Syria."⁴³ About the trade of the land of the Nile during the early Copper Age, Prof. W. J. Perry observes: "Conclusive evidence of intercourse with the outside world in predynastic times is afforded by the list of materials used by the predynastic Egyptians, which includes coral, copper, emery, galena (lead ore), haematite (iron ore), lead, lapis lazuli, mica, obsidian, resin, serpentine, silver, tortoise-shell and turquoise. Many of these substances must have come from abroad; for coral, iron (correctly, haematite), emery, lead and silver, to mention only some of them, are not known in Egypt."⁴⁴

If the use of copper implements by the people of the Nile valley or those of Mesopotamia must have been a very gradual process, the social changes that it effected must have been all the more gradual. One important factor that we find common to both these riparian plains is that the process of centralization of power culminated in the rise of certain all-powerful ruling families, known to historians as the dynasties. It is long before the beginning of the "Dynastic Period" in both these valleys that the Copper Age had commenced, and it continues for some time after the rise of these dynasties. There are also a number of other factors that are common to the society and culture of these two valleys. Classes not known to the neolithic economy came into being, and culture became diversified, enriched and stable. Villages, towns, cities, and states came into existence.

It is in the Copper Age that Egypt created those architectural giants, known as the Pyramids, which have been rightly reckoned

⁴⁰ Childe, NLM AF, p. 73

⁴¹ Ibid., p. 98.

⁴² Ibid., p. 105

⁴³ Ibid.

⁴⁴ Perry, *Growth of Civilization*, p. 57

among the wonders of the world even to this day. The Copper Age may be, perhaps, said to have continued at least upto the time of the sixth dynasty, when in one tomb at Medium, a rod of bronze has been found. However, there is little to show that this rod was used as an implement! An earlier instance of the use of bronze, viz that in the case of the statue of Pepi I (a king of the Vth Dynasty) has been proved erroneous.⁴⁵

The earliest architectural masterpieces of the valley of the Euphrates viz, the earliest Ziggurats, of Ur and other places, also belong to the Copper Age. The earliest specimens of undoubtedly bronze, found in Mesopotamia, are, perhaps, the bronze articles found in the Biblical city of Ur, where excavators obtained among other things "a fine adze-head, with a hole perforated to relieve the shaft,...some feet beneath buildings of the first dynasty of that city. It is composed of an alloy of gold, silver and copper with a trace of tin."⁴⁶ Obviously this does not mark the beginning of the Bronze Age, for in these strata, no bronze implements are yet to be found.

Origin of Classes

The building of such huge monuments as the pyramids and the ziggurats would not have been at all possible with neolithic implements or with neolithic economy. It is the copper chisel that enabled the cutting up of huge blocks of lime-stone—each often weighing no less than two or two and half tons—for the construction of the pyramids. Each of these blocks had to be manhandled, not only at the quarry, but from there to the pyramid until it was placed in its proper place. All this was done by slave-labour, which was an essential feature of the Copper Age civilization. The use of the implements of copper, instead of those of stone, affected the very structure of the society in a number of ways; it is this new and more developed structure that could produce such monuments as the pyramids.

As we have seen above, mines are generally confined to mountainous regions, away from the plains. We have also seen that quarrying and fashioning of implements have been the jobs of men rather than those of women: With the introduction of metals, they especially became so. Mining and working in metals are specialized jobs, which could not be done by the farmer as a part-time work. The miner or the primitive metallurgist had to be fed

45. E. B. (14), II, p. 247. Cf. C. A. H., I, pp. 201, 103

46. E. B. (14), II, p. 247.

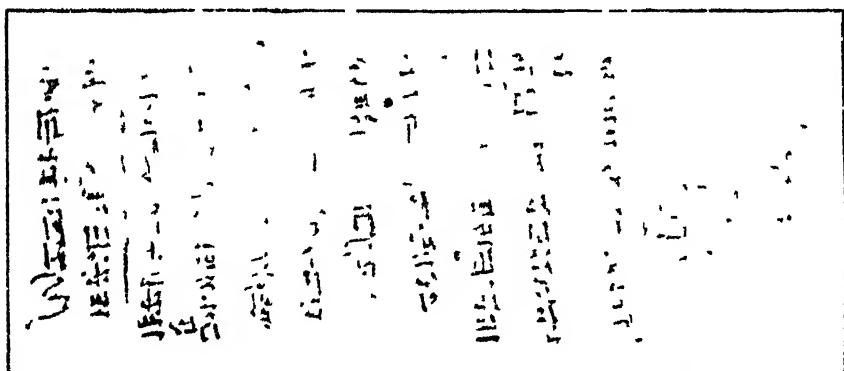
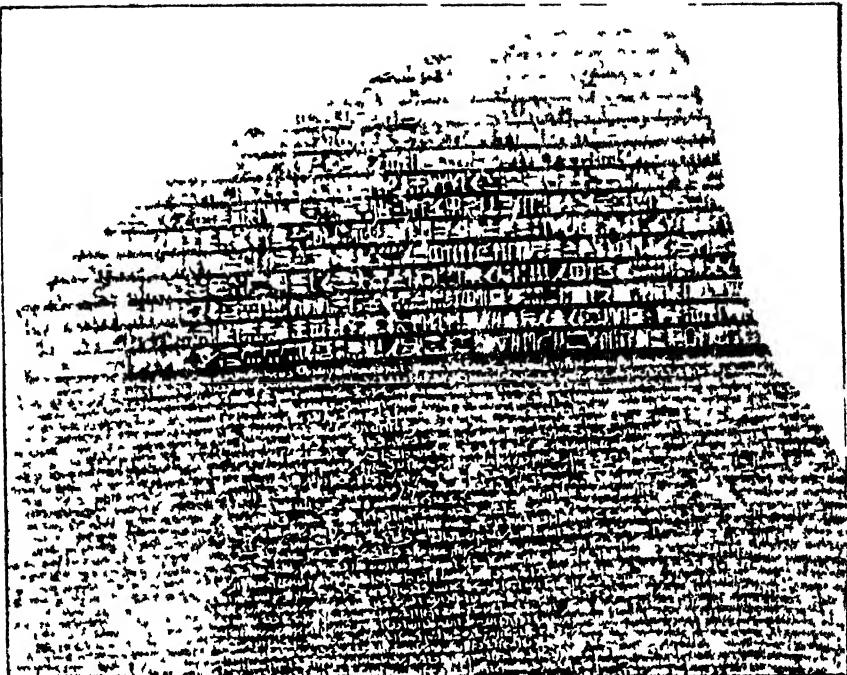


Plate 1 Egyptian Scripts

- (1) (Top) A Hieroglyphic Text of the Rosetta Stone (Guide IC p. 42)
- b Demotic Text of the Rosetta stone Guide IC p. 42
- (2) (Bottom) A Piece of Papyrus containing the XIIth Dynasty Hieratic Script Part of the Story of the Eloquent Peasant (Guide EC p. 2)

(Courtesy Trustees British Museum)

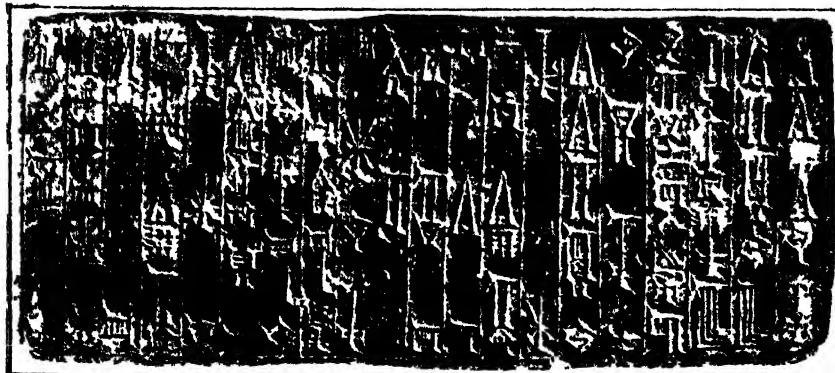
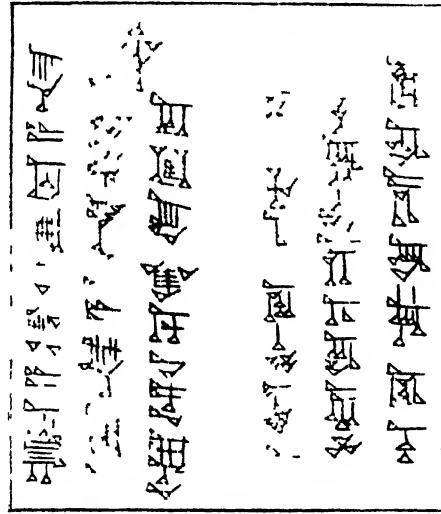
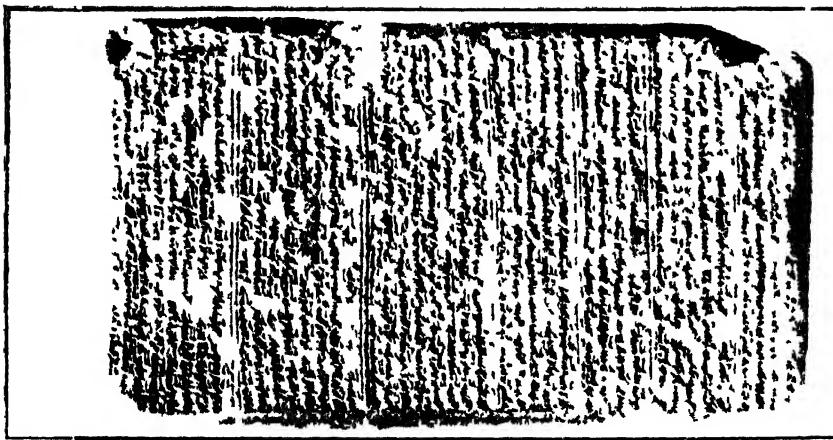


Plate II Hittite Mitanni and Babylonian Cuneiform Inscriptions.

- (1) (Left) Letter from Tušrī-utu (Dasatirash), King of Mitanni to Amorites III of Egypt c. 1150 BC (Gru 1 BAA p 128)

(Above) A stele of a Cappadocian
Tablet c. 2200 BC

B Part of a Colophon of Hittite
Tablet c. 1370 (Guide BAA p 21)

(Right) Khamudi inscription c.
1925 BC (Guide BAA p 97),
(C) Trustees British Museum

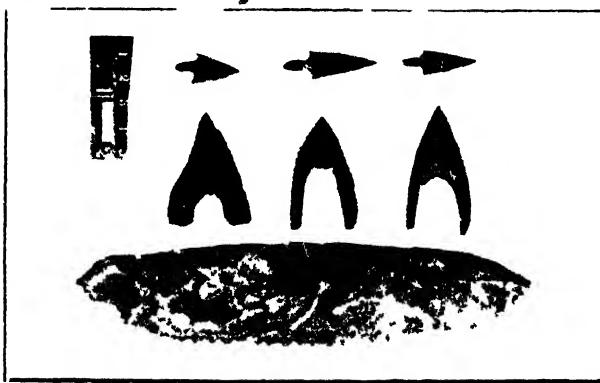
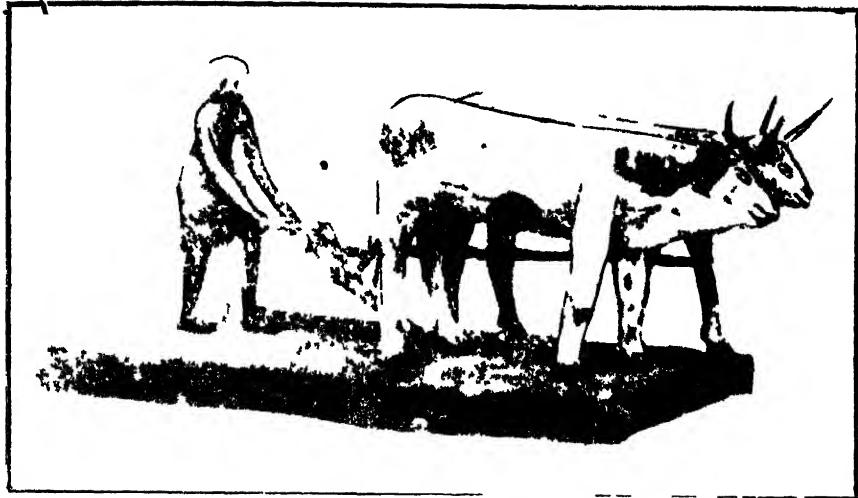


Plate III Early Egyptian Antiquities

- (1) (Top) An Ancient Model of an Egyptian ploughing with oxen Between VIth and XIIth Dynasty (c 2400-2200 B.C.)
- (2) (Centre) Badarian Stone Vase and Pottery (Guide EC p 275)
- (3) (Bottom) Fayum Arrowheads and Badarian Saw-flint (Guide EC p 275)

(Courtesy Trustees British Museum)



Plate IV Indus Seals

Mohenjo-daro Seals (Mackay FEM II P XCIV Nos 422 420 416
128 130)
(Courtesy Archaeological Survey of India)

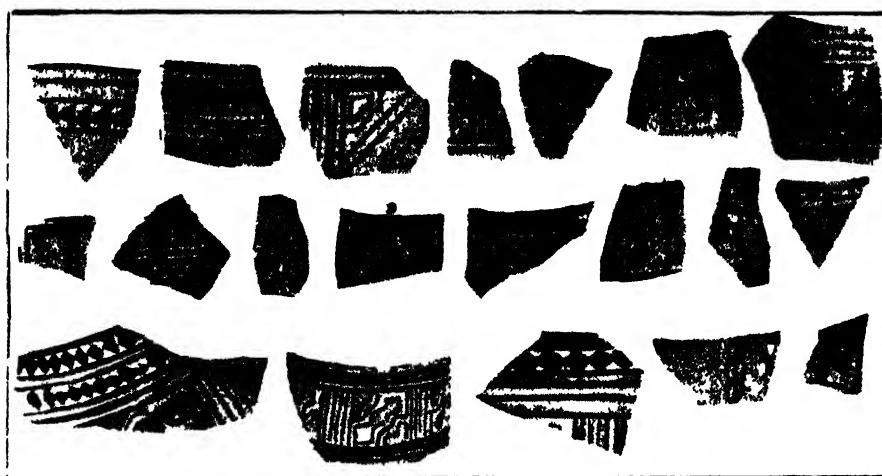
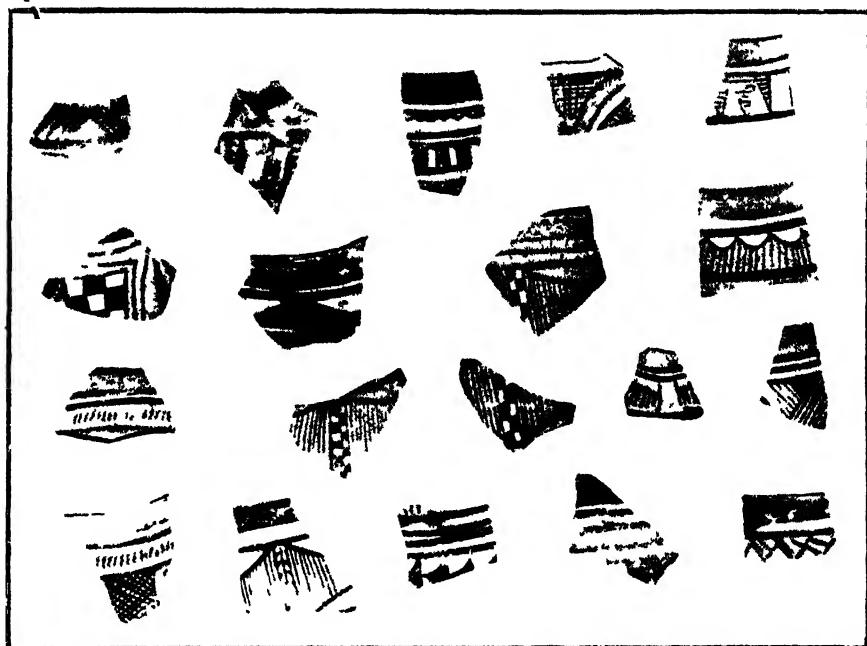


Plate V: Painted Pottery of Indus Valley Cultures

- (1) (Top) Painted Pottery from Amri (Mem ASI, No 48 pl XVII)
- (2) (Bottom) Painted Pottery from Nundara (Jhalawan) (Mem ASI, No 43 pl XXVI)

(Courtesy Archaeological Survey of India)

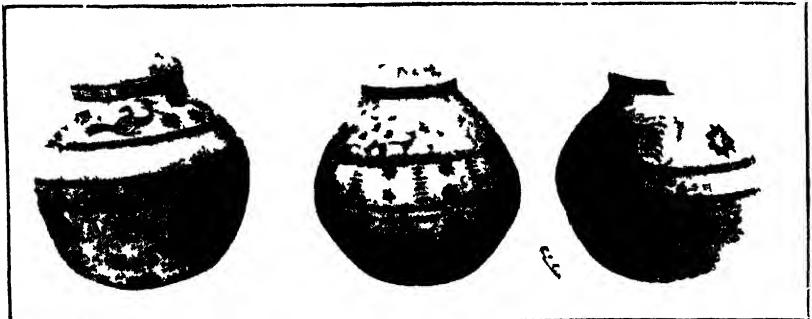
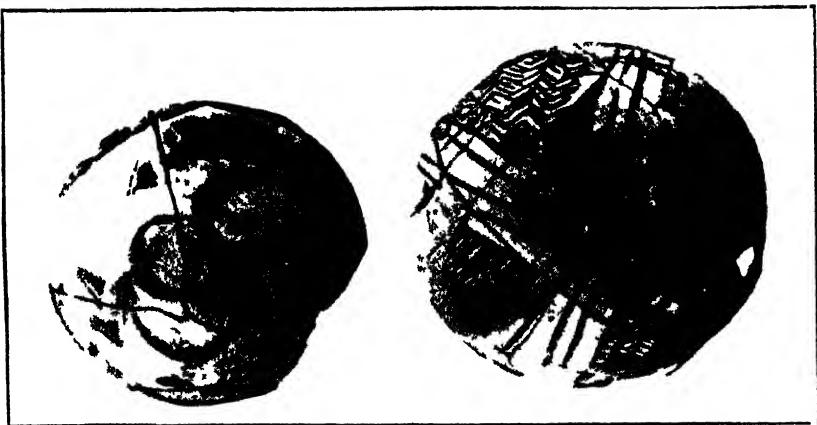


Plate VI For captions see facing page

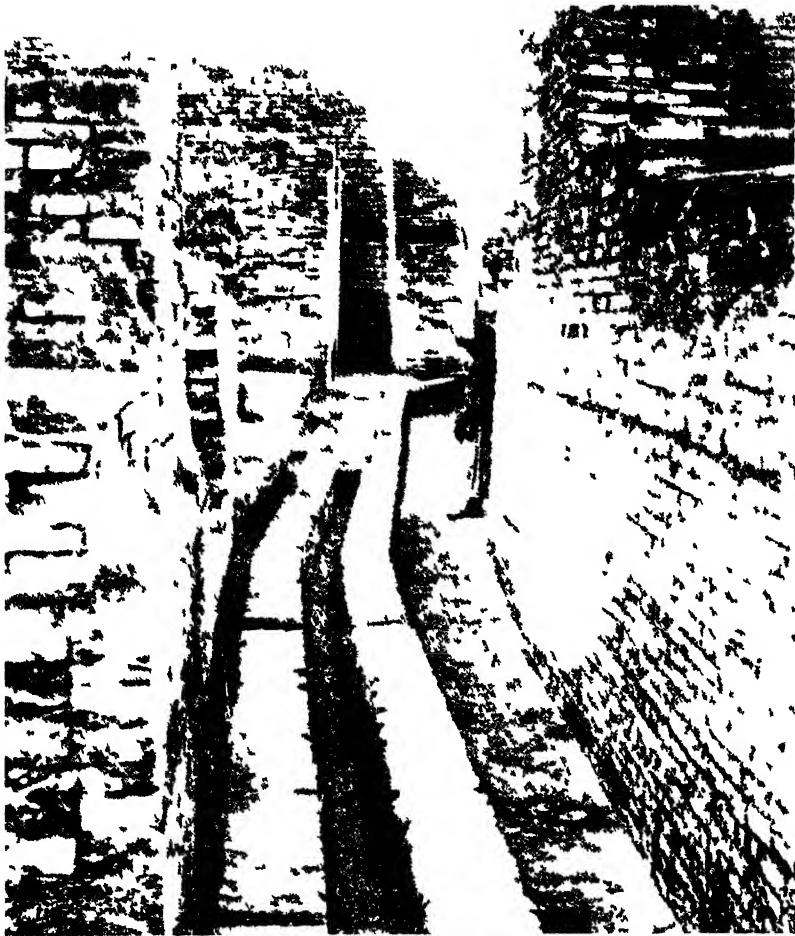


Plate VII A Lane of the Intermediate Period in Mohenjo-daro

Note the covered drain in the middle of the lane and the ladder leaning upstream. Note also the batter formed by the upper course, receding gradually from the bottom. (ASI Annual Report 1929-30, p. XXIV(1))

(Courtesy Archaeological Survey of India)

Plate VI Funerary Pottery of the Indus Civilization

- (1) (**Top**) A Harappa Pot-burial containing bone-remains a small narrow-necked vase etc (Vis Excavations at Harappa, pl LV (b))
- (2) (**Centre**) Funerary Pot in from Shah-i-Tump Makran (Mem ASI No 43 pl XV 1-2)
- (3) (**Bottom**) Pot-burials of Harappa depicting conventionalized Animal and Plant Designs (Vis Excavations at Harappa II pl LVII (b))

(Courtesy Archaeological Survey of India)

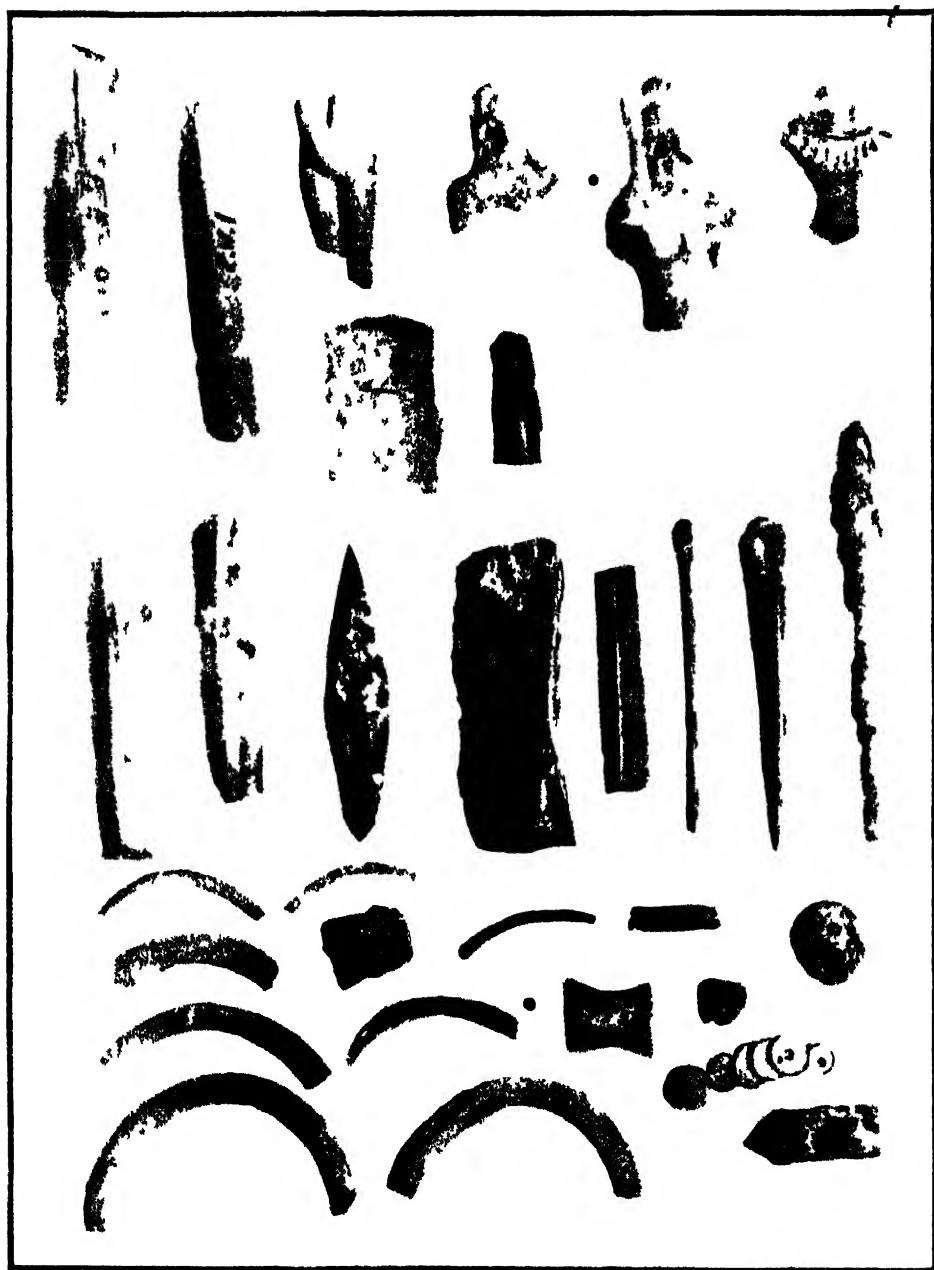


Plate VIII Antiquities of Late Indus Civilization

Miscellaneous Terracotta Stone and other Objects (Mother Goddesses etc.) from Pali no-Ghundai (Mem ASI No 37 pl IX)

(Courtesy Archaeological Survey of India)

by the produce of the farm, and the farmer had to obtain his tools etc., so that both of them were dependent on each other. But since the mines were not available, in most cases, in the vicinity of the regions abounding in agricultural produce, it was not possible for either party to exchange directly his own surplus for that of the other. It was factors like these that were responsible for the rise of the middleman, the trader. The miner, the smith and the middleman became essential factors in the Copper Age Civilization. Nobody could conveniently become a farmer, a miner and a metallurgist all rolled into one. Hence, there arose a division of labour in the society; each of these professions became a specialization; nobody could singly meet all the needs of the society or of himself. It is as a result of this specialization and the inability of meeting all the needs singly that there was an exchange of products between one producer and another. And when this was impossible in a direct manner, it was effected through the middleman. Thus, "production of commodities"⁴⁷ was responsible for the birth of the class of traders.

Origin of Patriarchy and Landlordism

The Copper Age affected the farmer also considerably. Not only was he able to utilize implements of copper instead of the less durable ones of stone, but these copper implements made possible the use of draft animals, in matters of farming. After these animals were first domesticated, it must not have been long before they were used for conveyance and riding—for carrying loads of objects or of persons. This must have been achieved long before the beginning of the Copper Age. It is, therefore, not at all surprising that it is quite early in the "Copper Age" that the draft animal was used for agricultural purposes, and the neolithic hoe was supplanted by the plough, carried by the draft animal. The handle of the hoe was lengthened to be yoked to the animal, so that it became the beam of the plough.⁴⁸ The introduction of the plough changed quite radically the small-scale farming of the Neolithic Age. Comparatively speaking, quite a huge amount of surplus was now available. The handling of the draft animal was, however, not the job of a woman but that of a man. Naturally the hegemony of the household passed gradually from the hands of the woman into those of

47. "Production of commodities" represents "that economic phase where articles are produced not only for the use of the producers, but also for purpose of exchange, that is, as commodities not as use values"—F. Engels
class of traders.

48. Breasted, *Ancient Times*, p. 61.

the man. Society gradually oriented itself from matriarchy towards patriarchy. Population increased rapidly. Matriarchal clans slowly developed into patriarchal tribes.

The growth of population meant in the beginning only more hands to work, i.e., more food production and more accumulation. Those, who had more fertile farms and greater number of men to work in them, could naturally produce more surplus, so that they were enabled to possess a larger number of copper tools, ornaments or utensils than others. They were much richer than others who had no good farms and no sufficient surplus to purchase even the most essential copper tools. Not everybody could purchase such farms and such tools, and those who had none had to work on others' farms with others' tools. This state of affairs naturally evolved out of the ever-growing differences between the richer groups and the poorer ones, when gradually the former utilized their surplus for the possession of more land, for the purchase of others' land, which neither they themselves nor the members of their families could till. By allowing others the use of their own farms and also of their surplus tools, for their own benefit on the basis of a meagre payment, they could purchase the labour of others and were ultimately enabled to enslave them for working even for their whole life-time. Landlordism established itself firmly on the soil, together with slavery, not long after the commencement of the Copper Age. All such slaves were not necessarily purchased, for some were captured. Already in the Amratian period, we find the existence of slaves, endorsed by the "figurines of water-bearers generally female, and of captives with their hands bound behind them."⁴⁹ Tiny clusters of huts of the Neolithic Age gradually developed into villages, towns and cities with this advent of slavery, which supplied the "human bricks" for their giant structures. Thus, it would be clear that "civilization" in the original sense of that word (viz, that of "city-culture") belongs to this age initially, and cannot be assigned to any earlier epoch.

Origin of the States

Consequent upon the increase of population, hundreds of problems arose, not the least of which was the land hunger. Sometimes, a few neighbouring villages would grow large and unite with one another, that is, would become absorbed into a single big town or a city.⁵⁰ Such a development depended not only on the near-

49. Childe, N.I.M.A.E. p. 72

50. Vide supra, pp. 61f, 90.

ness of those villages, but, and mainly, on the fertility of the neighbouring farms and on their being trade-centres. Again, richer farmers always stood in danger of being robbed of their surplus, so that they had naturally to protect it from the hands of those who had none—of the looters. Their surplus enabled them also to possess copper weapons of defence—in addition to copper sickles and ploughs, that increased their surplus. This problem of defence was met in a number of ways, by building better and more solid houses, by girdling the towns and cities with walls or ramparts, with moats or ditches etc., and also by obtaining or making more and better weapons of defence and offence. The land hunger manifested itself in ever-increasing efforts of one patriarchal tribe to conquer another, and skirmishes between neighbouring villages became a common phenomenon. The richest land-owners and slave-owners would naturally try to possess more and better weapons of defence and offence, and would so rise to become the leaders of villages, towns and cities: Heads of big patriarchal families would become tribal chieftains. After having conquered neighbouring villages, towns, or tribes, leaders of bigger or more powerful villages, towns or tribes would guarantee their protection or would furnish a security from further plunder by themselves and others; but this they would do only under certain conditions, such as a regular payment of taxes. Out of this process evolved the states, which in the beginning we find everywhere as being of two sorts viz, tribal states and city-states. The formation of these states thus evidently belongs to the beginning of the Copper Age. As seen above, the earliest dynasties in both Egypt and Mesopotamia belong to this age. Their rise only proves that the society of this age had matured to the extent of developing a form of political organization, under which alone it could function smoothly, viz. an organ of coercion, that could regulate the relations between the slaves and their masters, the rural element of the populace and the town-folk, the subjects, the state-servants and the rulers, etc. The rise of the dynasties also betrays the fact that the tribal and city-states had developed fully in certain localities, especially in the plains of the Nile and the Euphrates, so that they were looking beyond the immediate affairs of those tribes and cities, and the foundations of the riparian empires were being laid down.⁵¹

While carrying the metal ores over long distances, or convey-

51. Cf. Breasted, *Ancient Times*, p. 82:—"Government began with tiny city-states, which gradually merged together into nations; but the organization of men had now reached the point where *many nations* were combined into an empire including a large part of the early oriental world."

ing valuable finished articles to distant places, the middleman was beset by a number of difficulties, handicaps and troubles, not the least of which came from the attacks of armed robbers or way-layers.⁵² He had two alternatives before him to continue his trade: either to protect himself from such plunderers by forming guilds, containing armed personnel, or to invoke the aid of the most successful of the plunderers—the tribal heads or the chieftains of the city-states. The traders' guilds were often met by robbers forming gangs. The more successful and wiser robbers levied taxes for allowing passage through their territory. The inner contradictions of the early metal age civilization are thus reflected throughout the ancient world, not only in the growth of armed guilds,⁵³ but also in that of the robber-gangs and the rise of powerful chieftains. But in order to obtain such a guarantee of peace, the traders had to agree to paying taxes, either in grain, or in the ware that he had, or in coin, when the latter originated.⁵⁴ Different kinds of taxes were thus evolved, which meant a steady income to the ruler of the land. The position of the latter was much more stable than that of the trader, for he had another steady income—that from

52. Cf. Malavikagnimitra, V after st. 9 — 'पर्थकसार्थं विदिशानुगामिनमनु-
प्रविष्टः....ततस्ततः—तूणीरपद्धरेणद्भुजान्तरालमापाणिलमित्रशिखर्हकलापश्चारि । कोदण्ड-
पाणि निनदत्प्रांतरोधकानामापातदुष्प्रसहमाविरभूदनीकम् ॥ १० ॥'

53. Cf. Mandasore Ins. of Kumaragupta and Bandhuvarman, st. 10f. -

'श्रवणसुभगं भातुवैद्य दृढं परिर्नाष्टताः...॥ .. [अथर्प] चान्ये समरप्रगत्याः ॥ '
The Vana parva (Mahabharata) contains a beautiful description of a well-equipped guild, becoming devastated at night on account of a natural calamity in the form of an attack by a herd of elephants. The composition of the guild is given in the following:- Mbh. (BORI, edn.) III 61.106 f. 'ददर्शथ महासार्थं हस्त्य-
श्वरथसंकुलम् ॥ १०६ ॥ ...प्रत्युवाच ततः साध्वी भर्तृव्यसनदुःखिता । सार्थवाहं च सार्थं च
जना ये चात्र केचन ॥ ११७ ॥ यूनः स्थविरबालाश्च सार्थस्य च पुरांगमाः । अहं सार्थस्य नेता
वै सार्थवाहः शुचिस्मिते । ...साऽत्रवीद्विणिजः सर्वान्सार्थवाहं च तं ततः । क तु यास्यति
सार्थोऽयमेतदाख्यातुमहीय ॥ १२८ ॥ सार्थवाह उवाच । सार्थोऽयं चेंद्राजस्य सुवाहोः
सत्यवादिनः । क्षिप्रं जनपदं गन्ता लाभाय मनुजात्मजे ॥ १२५ ॥'

Ibid., III.62.9:—'गोखरोश्चाश्वबहुलं पदातिजनसंकुलम् । भर्यार्तं धावमानं तत्परस्पर-
हतं-तदा ॥'

54. Mbh. (BORI edn.), II, 5.103:—'कच्चिदभ्यागता दूरद्विणिजो लाभकारणात् ।
यथोक्तमवहार्यन्ते शुल्कं शुल्कोपजीविमः॥कच्चित्ते पुरुषा राजन्...। उपानयान्ते पण्यानि...॥ १०४॥'

the cultivated land. Throughout all this early metal age, it was he who was more powerful than the trader.

Origin of the Empires

Each petty state, "tribal" or "civic", would allow the passage of mercantile ware only after the payment of customs and other taxes. States, endowed with rich agricultural surpluses but removed from the mining area (i.e., flourishing in the plains away from the hills abounding in metal ore) would be in need of more armament, and would also be in a position to purchase more of it, than other states, that may not be so rich, but may be nearer to the mining area. It was never in the interest of the intervening states to allow the natural flow of weapons to such rich states, to allow them to possess a greater number of weapons that may ultimately prove their own doom. Similarly, it was never in the interest of the rich states of the plains to allow the intervening states to impede the flow of "natural" trade. Thus, some of the earliest empires originated in the fertile plains of the river valleys, and their initial expansion was in the direction of the mines, with a view to controlling the very source of such weapons and tools. On the other hand, sometimes some powerful state would rise in the vicinity of the mining area and with a plenitude of weapons at its disposal, it would not be very difficult for it, to conquer the worse-armed but better-provided people of the rich plains. This class of empire-builders, starting from the mining area, conquered the plains, and moreover settled therein.

Thus, it would appear that whichever end they started from, the first empire-builders of the early metal age tried to achieve a unified control over both the mining regions and the plains—the two most important sources of wealth in ancient times. The reason for both the types of empire-builders thus settling in the plains lies in the bigger surplus or the greater wealth as well as other amenities of the plains. The presence of the richer landlords and noblemen, in whose hands this surplus accumulated, and of the middle-classes (e.g., the traders, the state-officials, the literate people etc.), in the cities, together with the amenities of the city-life, would naturally compel the hands of the empire-builders in the matters of selection of their capital or place of habitual residence. With the growth of armed forces and increase in security, it was beneficial for the empire-builders (like the Saisunagas of Magadha) to leave their fortified residence on the hills (like Girivraja, near Rajgir) for residing in the walled cities of the plains (like the city of Pataliputra or Patna).

In this way, simultaneously with the growth of the farmers, the miners, and the primitive metallurgists or smiths, there was also the growth of the middlemen or the peaceful distributors of (different types of) social wealth, as well as of the professional warriors or the "forceful distributors of social wealth." Simultaneously with the growth of the landlords and the formations of guilds of smiths and traders, there grew the need of professional warriors, whose lifelong task was to protect the legitimate interests of all these classes, that had either property or money to be protected. With the help of this wealth, the biggest landlords bound unto themselves large hordes of such professional warriors, becoming their chiefs. Political power thus concentrated in the hands of the heads of tribes or cities; but they owed this concentration of power to the weapons that they had. It was the necessity to control the very *sors et origo* of these weapons that was one of the most important factors in the growth of the earliest empires of the Copper and Bronze Age. In this process of development, both the original producers of the agricultural surplus (or the farmers) and those of the mineral surplus (or the miners), being dependent on others for some of their primary needs, thus became subservient to the middlemen and especially to the landlords or warrior-chieftains.

Examples of both the types of empire-builders, alluded to above, can be furnished even from what little we know of the beginning of the metal age. Some early semi-mythical kings of the First Dynasty of Egypt are credited with introducing in the history of Egypt not only a long succession of dynasties, but also the age of metals, which they are said to have brought into the plains from the mountainous regions of the South. On the other hand, Zoser, the founder of the Third Dynasty of Egypt and the builder of the earliest great pyramid known to archaeology, is credited with having sent an expedition from the plains of Egypt to the mines of Sinai in the North. King Seneferu or Snefru, the first Pharaoh of the IVth Dynasty, often characterized as one of the greatest Pharaohs of Egypt, was in a position to establish successfully his hold over the copper mines of Sinai, which, thereafter, continued to be reckoned as the possession of the Egyptian Pharaohs for many centuries. Incidentally Prof. Flinders Petrie even found some vestiges of ancient mining operations, e.g., cuttings of chisels etc., on some rocks of Sinai.

As in Egypt, so in Mesopotamia, the earliest Copper Age empire started from the fertile plains and grew in the direction of the mines. Sargon of Akkad (or Sharrukin of Agade), who lived

about 2700 B.C., appears to have owed his greatness to his successful expedition for the conquest of some mines: "The legend on a statue gives some details of the positional situation to the northwest of Sumer and Akkad. It names three realms, Mari,... Iarmuti, and...Ibla,...Across these territories, Sargon's power extended to 'the cedar forests' (Lebanon or Anti-Lebanon) and 'the mountains of silver' (Taurus). These had been the objective of the expedition. His own country, an alluvial land, yielded the inhabitants neither timber for building, nor stone nor metal."⁵⁵ Some other instances, where we find the empire-builders, starting from the iron mines, and building up great empires in the more fertile regions of the plains, may be noticed later when we come to the Iron Age.

Meanwhile we shall note how the possession of copper mines by such emperors affected the whole society, stabilizing its political structure and enriching its culture in a number of ways, including the building up of its architectural giants: "With Snefru the new age opens. We see Egypt as a firmly united state, extending from the isthmus of Suez to Lower Nubia, with a kind of intermittent colony of miners and quarrymen in Sinai, and with its capital at the appex of the Delta, as at the present day.⁵⁶ It is organized in a number of districts or 'nomes',⁵⁷ ancient divisions no doubt corresponding to the territories of predynastic tribes. There were about twenty in Upper Egypt, and, later on, the same number, more or less, existed in Lower Egypt, probably as the result of an artificial equalization devised in order to make the two lands alike in importance. In Snefru's time they were ruled by officials who still bore the title of Hik (or Hiqa) or 'chief', but were no longer necessarily local chieftains, but royal nominees."⁵⁸

The relations between different classes of slaves and servants on the one hand and their masters on the other existed differently. Those who had the power to do so, like the landlords, the chieftains etc., passed on all the menial labour to their servants and slaves, whom they naturally tried to exploit as much as they could. Mining was a difficult operation in those days, but at the same time an

55. Delaporte, *Mésopotamie*, p. 20.

56. It must have been the nearness of the copper mines, that was responsible for bringing the seat of Government step by step towards the mouth of the Nile.

57. Called in ancient Egyptian 'hsap'.

58. C.A.H., I, p. 278. Cf. Guide: EC, p. 14. Snefru "built vessels nearly 170 feet long for traffic and administration on the Nile. He opened up commerce with the north, and the journey of the 40 vessels which he sent to the Phoenician coast for cedar out of the Lebanon is the earliest known mercantile expedition on the open sea." (Memoir. A.S.B., VII. 1918-1922. p. 191 f.)

essential one. Moreover, the mine-worker was, unlike the farm-worker, at the complete mercy of his master, who fed him. There was naturally some difference on this account between the exploitation of the farm-slave and the mine-slave, the condition of the latter being much worse than that of the former. The Law of the ruling classes lay with a heavy hand upon the mine-workers. Persons, required to work at the mines, often included the meanest of criminals. "Copper mines in the Peninsula of Sinai were worked by a colony consisting for the most part of Egyptian convicts as early as....4,000 b.c."^{59a} A parallel to this may be found in the practice of the Chinese emperors of sending the worst criminals of their realm towards the North to build the Great Wall of China, instead of condemning them to death.

Diodorus Siculus (III.12.14) "paints in gloomy colours the misery of the thousands of hapless criminals condemned by the sentence of the king of life-long penal labour in the mines as they ply their cruel work in fetters without rest, night and day, driven by the merciless lash of their overseers, with lamps on their brows, gliding like ghosts through the gloomy galleries, without care for their bodies or clothing for their nakedness."^{59a} In this he describes the condition of the slaves that worked in the gold mines of Egypt. But we know that similar conditions prevailed elsewhere, too, in the ancient world. About the Roman slaves, sent to the mines, we learn that "they worked half-naked, men and women, in chains, under the lash and guarded by soldiers."^{59b}

As noted above the formation of the guilds was an important aspect of this whole period. The economic basis of this formation has been explained in the following manner by an eminent sociologist: "The peasant family produced almost everything it required—utensils and clothing as well as food. It was only when it succeeded in producing a surplus beyond its own needs and the payments in kind due to the feudal lord—it was only at this stage that it also began to produce commodities; these surplus products, thrown into social exchange, offered for sale, became commodities. The town artisans, it is true, had to produce for exchange from the very beginning. But even they supplied the greatest part of their own needs themselves....Production for the purpose of exchange, the production of commodities, was only in its infancy. Hence, restricted exchange, restricted market, stable mode of production,

59. UBD. p. 319.

59a. Dr. O Schrader, *Prehistoric Antiquities of the Aryan Peoples*, (London 1890), p. 170.

59b. E. B. (14), XX, p. 776. i.

local isolation from the outside world, and local unity within: the Mark in the countryside, the guild in the town."⁶⁰ Although this writer confines himself only to the description of the economic characteristics of the medieval society, and makes these remarks only incidentally in connection with the beginnings of such a society, these remarks throw a flood of light on the state of affairs of the society of the Copper Age. In the economic life of the society, the countryside has always represented the backwater area, that almost always steadily refuses to get dried of the waters of the older civilizations or cultures.

To sum up, simultaneously with the specialization of the vocations of the farmers, the smiths etc., there was also another specialization in the field of the protection of the ever-growing surplus of agricultural wealth and of the surplus in the hands of the traders, that is to be witnessed in the growth of the power in the hands of the chieftains of some tribes, in the origin of kingship or in the rise of the states in the fertile fields, and ultimately in their ripening into empires in the fertile lands of the early inhabited world that stretched in the great river valleys. The rise of the states was the only remedy to check the unwholesome effects of the growth of robber-gangs; similarly the rise of the empires was the only remedy to checkmate the unwholesome effects of the interminable squabbles of the innumerable petty states. Both of them promoted in their own way a growth of industry and trade. The latter in their turn gave rise to a number of factors that had to be met by man, by means of a number of innovations.

Origin of Writing

Thus, it is to the need of communicating over long distances, in authentic and comprehensive terms, that we can trace the use of the script. Traders of different localities, wishing to sell surplus products of their lands to distant countries, had to communicate with their agents or with other traders over long distances. Oral communications could not always be found reliable, and were certainly far from comprehensive. Authentic and comprehensive statements about such commodities, their weights, prices etc. could be conveyed over long distances only after the introduction of writing. It is not without reason that seals of various stones or other documents, authenticating one trader's terms to another or bills-of-exchange etc., make their appearance in the Near East almost all of a sudden before the end of the Copper Age. Some of the earliest

60 F. Engels, *Socialism: Utopian and Scientific*, p. 35.

documents found in the Near East contain accounts and "lists of signs", which appear to have been convenient marks agreed upon by traders.

In connection with the origin of the first scripts, known throughout the world, we may quote the following passages from an eminent archaeologist Prof. Jaques de Morgan; but we wish at the same time to point out incidentally how the use of such terms as the "eneolithic age", in the place of the "Copper Age", becomes totally misleading: "Hieroglyphics do not seem to have been known in our part of the world. This system was evolved in the Orient, in Central America, and in China. We find it established in Egypt from pre-Pharaonic times; it must have come into the country together with the knowledge of copper. In Chaldea and Elam, it already existed in eneolithic times, as a precursor of the cuneiform signs."⁶¹

Origin of the Coinage

In the beginning, surplus products or commodities were directly exchanged for each other. But this method, known as barter, is liable to be found anything but a convenient method of exchange. Indeed, without some sort of a medium of exchange, even petty dealings, that used to take place before the beginning of the Copper Age, could not have taken place with any ease or facility. It was, therefore, found very necessary at an early time in the history of trade, to have some medium of exchange such as the cowries, which had come into vogue at least in the early neolithic times, if not even in the Upper Palaeolithic or Mesolithic Age. The cowrie was looked upon as emblematic of the Mother Goddess, the goddess of feminine fertility, and as being endowed with life-giving or life-producing faculties. In the cattle-raising and sheep-rearing clans, cattle and sheep, also looked upon as emblematic of the fertility cult of the Mother Goddess, came to serve as the medium of exchange. Both in the Brahmanical and Homeric literature, we find cattle serving as the medium of exchange, just as it does among "the Zulus and Kaffirs today. In the Iliad, the respective values of two shields are stated in head of cattle, and the Roman word for money, *pecunia*, is derived from "pecus"⁶² which means "cattle" and which is the same as "pasu" in Sanskrit. With the introduction of the metal age, some metals, especially copper, silver and gold, came into vogue as media of exchange, and it was not before long that they replaced other cumbrous media such as the cattle or the

61. De Morgan, *Prehistoric Man*, pp. 257-258.

62. Wells p. 194.

sheep. Various precious and semi-precious stones and beads made thereof, must have also served as media of exchange from very early times; and they were also handy enough. But metals had a number of other advantages: They were plentiful, and metal-pieces could be cut to any required fraction with ease. Metals were found to be the most convenient medium of exchange, because their value could be comparatively more easily determined, because they could be transferred from one hand to another in any required quantity, because they were handy enough to be carried from one place to another, and lastly, because they would remain undamaged for quite a considerable length of time. Measured quantities of metallic pieces could be easily exchanged for any ware, or could be paid out in taxes. Such pieces naturally provided the best channel for trade.

As Dr. Adam Smith has pointed out long ago, "when the division of labour first began to take place, this power of exchanging must frequently have been very much clogged and embarrassed in its operations.....In order to avoid the inconveniency of such situations, every prudent man in every period of society, after the first establishment of the division of labour, must naturally have endeavoured to manage his affairs in such a manner as to have at all times by him, besides the peculiar produce of his own industry, a certain quantity of some one commodity or other such as he imagined few people would be likely to refuse in exchange for the produce of their industry. Many different commodities, it is probable, were successively both thought of and employed for this purpose. In the rude ages of society, cattle are said to have been the common instrument of cominefce; and, though they must have been a most inconvenient one, yet in old times we find things were frequently valued according to the number of cattle which had been given in exchange for them. The armour of Diomede, says Homer, cost only nine oxen; but that of Glaucus cost an hundred oxen.... Metals can not only be kept with as little loss as any other commodity, scarce anything being less perishable than they are, but they can likewise, without any loss, be divided into any number of parts, as by fusion those parts can easily be reunited again; a quality, which no other equally durable commodities possess and which more than any other quality renders them fit to be the instruments of commerce and circulation."⁶³

Dr. Smith adds: "Those metals seem originally to have been made use of for this purpose in rude bars, without any stamp or

63. Adam Smith, *The Wealth of Nations*, (Chapter III), pp. 33-34

coinage. Thus we are told by Pliny (*Plin. Hist. Nat.*, Lib. 33, cap. 3), upon the authority of Timaeus, an ancient historian, that, till the time of Servius Tullius, the Romans had no coined money, but made use of unstamped bars of copper, to purchase whatever they had occasion for. These rude bars, therefore, performed at this time the function of money."⁶⁴

Yet, commerce over long distances could be really facilitated only by something like a standardized system of weights and measures; and it is not surprising that it is in the Copper Age that we first come across in Mesopotamia the beginning of the use of the classical Babylonian system of weights and measures.⁶⁵ In reality, there is not much of a difference between this system of weights and the system of unstamped "coinage", that we find in many parts of the Near East shortly afterwards. Indeed, the institution of metal currency, unstamped and unsigned, but conforming to a certain weight, did not essentially differ in the initial stage from that of the weights. This is made nowhere so clear as, perhaps, in Babylonia, where payment of salaries or of fines, was usually made by weighing out *manas* and *shekels* of silver.⁶⁶ In the Iliad, too, metals not only served as medium of exchange, but were weighed out by the *talanton*—which name signified both the balance and the weight. In the *Genesis*, grain appears to have been paid for by weighing silver.⁶⁷ Another piece of evidence, proving the connection between the weight-system and the coinage, lies in the following facts: The standard Babylonian system of weights, consisting of *shekels*, *manas* etc., appears to have been current among the early Hebrews, according to the earliest portions of the Old Testament; and it appears that the names "*shekel*" etc., signify coins only during and after the *Exile*, in that text.⁶⁸

In view of this intimate connection between the system of weights and that of coinage, there is no reason for wonder that the system of weights as envisaged in the stone cubes etc., found at Mohenjo-daro, Harappa etc., conforms to the system of coinage found in the *Manusmriti* and other early works in Sanskrit, as was first pointed out by the late Rao Bahadur K N. Dikshit. Indologists have shown long ago that the words: "sacha mana hiranyaya" in a Rig-vedic hymn contain a direct allusion to the *mana* weights of Babylonia—corresponding terms for which in Latin, Greek and

64. Adam Smith, *The Wealth of Nations*, p. 34

65. Childe, MAF, p. 152; also p. 146f.; 153f.

66. CAH., I, p. 545.

67. Gen., 41.57; 42.3; 25; 35; 43.11; 12; 21; etc

68. UBD, p. 407.

Phoenician are mina, mnā (or mnā as in Herodotus) and menah respectively.⁶⁹ We also feel inclined to suspect that the word "sacha" is possibly connected with "shekel", and does not stand here for "saha" (together with), as is generally understood.

We have seen above how commerce in the Copper Age was responsible for the origin of coinage of the earliest type, which was little more than pieces or globules of certain metals, corresponding to certain weights. There is, indeed, a certain, not-very-clear relation, observable in some of the earliest seals found in some localities, between the system of weights and the seals containing animal representations and pictographic writing:

"The seals in animal form, that are extremely common at Susa, often approximate closely to the shekel or some multiple thereof, when weighed even in their present imperfect condition: they may, therefore, have served as weights as well as for the authentication of documents. Hence the classical system of weights and measures goes back in part at least to the Second Prediluvian Age."⁷⁰ Unfortunately, the Indus Valley seals have not been examined from this point of view, and this presents a problem to work upon immediately, especially for those who are happily so well-placed as to undertake it.

As to the actual occurrence of stamped metal coinage, archaeological evidence appears to show that it was the Assyrians, who issued such coinage for the first time; but there is a possibility that they owed it to the Phoenicians. Stamping was done as a guarantee against fraudulent weighing and debasement of the metal used in transactions, and this facilitated such transactions immensely. Stamped metal currency thus developed rapidly into an essential factor in commercial transactions, as a medium of exchange, especially in the case of higher deals, where cowries were not very useful and the cattle or sheep also equally unsuitable or cumbrous, and where barter was often not altogether feasible.

The economic reasons for the origin of stamped coinage, in the place of unstamped bars conforming to a certain weight-standard, are elucidated by Dr. Adam Smith as follows: "Before the institution of coined money, however, unless they went through this tedious and difficult operation, people must always have been liable to the grossest frauds and impositions, and instead of a pound weight of pure silver, or pure copper, might receive in exchange for their goods an adulterated composition of the coarsest and

69. V. I., II, p. 128; B. G. Tilak, in (Sir) R. G. Bhandarkar Commemoration Volume (1917), p. 39. R. V., VIII, 78, 2

70. Childe, M. A. E., pp. 151-152.

cheapest materials, which had, however, in their outward appearance been made to resemble those metals. To prevent such abuses, to facilitate exchanges, and thereby to encourage all sorts of industry and commerce, it has been found necessary, in all countries that have made any considerable advances towards improvement, to affix a public stamp upon certain quantities of such particular metals as were in those countries commonly made use of to purchase goods. Hence the origin of coined money, and of those public offices called mints...."⁷¹ Thus, it is very clear that stamped coinage must have been from the very beginning a public institution, these stamps having a sacred significance, acceptable at least to the generality.

Taking into account all these factors, there is nothing surprising that the Vedic Aryans (as is conclusively proved by Gen. Alexander Cunningham, Prof. Edward Thomas, Prof. D. R. Bhandarkar etc.) were aware not only of a system of weights (which included "mana"), but also of a system of coinage, i.e., of stamped metal currency. The actual beginning of such currency is however, perhaps doomed to remain ever shrouded in mystery. None the less, as noticed above, archaeology is able to adduce substantial evidence of the use of cowries, in the Neolithic Age if not in still earlier times, and these had a value, because of their "religious" fecundity significance. Secondly, the early classical and Tantric literature, nay, even the Vedic literature, can well substantiate cumulative archaeological evidence, gathered from various countries, that points to the irresistible conclusion that the early symbols stamped on the earliest coinage throughout the ancient world, were essentially connected with the cult of the Mother Goddess and bear the same sacred fecundity significance. It would thus appear that stamped metal coinage is, in a sense, no novel or radical innovation, but only a combination of two ideas, one, relating to the use of metals as a medium of exchange, and the other, relating to the sacredness attaching to the cowries that were already in vogue as a medium of exchange. The earliest symbols to be found on the Greek, Indian and other coins are essentially connected with the cults of the Mother Goddess and the Father God.⁷²

As to the approximate date of the introduction of coinage in India, it may be either the end of the Bronze Age, or the beginning of the Iron Age. Speaking in terms of absolute dates, one can say

71. Adam Smith, *The Wealth of Nations*, pp. 34-35.

72. See our work, *The Mother Goddess* (1943, Poona), in which the foregoing points have been dealt with at length.

that there is no certain material evidence to place the beginning of the stamped coinage in India to a period anterior to the latter half of the second millennium B.C., to which period, at the earliest, the composition of the *Rig-vedic* hymns, containing such allusions, may be referred. The attempts of certain scholars, to antedate both the composition of the *Rig-vedic* hymns and the introduction of coinage, to a period before the middle of the second millennium B.C., do not appear to be justifiable in the light of the archaeological evidence, advanced below. It appears to us that the Vedic Aryans were well-advanced in the metal age, and that it is in this light that the problems relating to the dates of different Vedic texts ought to be solved. Although the origin of coinage may, thus, very well fall in the "Copper and Bronze Age", actual evidence of such (stamped) coinage is to be found in many countries only in the beginning of the Iron Age. Further, in India, while literary evidence of this is supplied by references in the Vedic Literature, no actual finds of such (stamped) coinage can be confidently assigned to any period before the fifth century B.C., and the Vedic references, too, cannot place it more than a millennium earlier. It may also be noted that in China, copper coinage is said traditionally to have been introduced by Emperor Chung of the Chou dynasty, who is said to have ruled in about 1100 B.C., i.e. not very long after the introduction of the Iron Age in China.

As to the western world, the position has been summed up by Dr. Weech in the following words, which must, of course, be accepted with due changes in the light of the above: "The old system of barter, whereby goods were exchanged for goods, had been largely superseded by the use of metal as a medium of exchange, generally in the form of bars, ingots, rings and spits. All four were cumbrous and difficult to transport, and the bars and ingots were not easily divisible. The kings of Sardis encouraged their merchants to employ small, flat, round, well-shaped coins, which passed comfortably and rapidly from hand to hand. The coins bore on either side a stamp or die, which guaranteed their purity and value. At first electron⁷³ or white gold was employed; later a double coinage was minted at Sardis in silver and pure gold; the ratio was fixed at about thirteen to one. The new system was adopted by the Greek chapmen of the Aegean and by the Phoenician cities, and it spread to Mesopotamia and Africa. Men used the new coinage confidently as a reliable medium of exchange, which would be accepted equally at Sardis or Miletus, Sidon or

73 The same as electrum, which is an alloy of gold and silver

Hamadan, Memphis or Babylon. Credit grew with confidence and trade expanded. The kings of Lydia became famous for their wealth, and the names of Midas and Croesus have survived to the present day as emblems of opulence."⁷⁴

Commerce over long distances introduced a number of factors, besides those noted above. It must have been always easy to sell one's wares in distant countries in exchange for small quantities of precious metals, but not of great quantities of the common metal, copper. The possession of such precious metals undoubtedly played a prominent part in differentiation of the rich and the poor, or in crystallizing the formation of different classes in the society of the Copper Age. Of these metals, gold acquired at a very ancient time a great importance and came to be prized above all others, the heads of city-states, kingdoms and empires vying with each other for the possession of greater and greater quantities of it. Gold mines began to be worked since the commencement or at any rate advancement of the Copper Age almost throughout the ancient world. According to one authority, quantities of gold were brought to Egypt from as distant countries as Transylvania almost since the beginning of the Dynastic Age.⁷⁵ Prof. Perry also observes that "the Egyptians were sending expeditions to the land of Punt as early as the First Dynasty to get gold, electrum, feathers, ivory and the resinous substances that they used for ornamentation and for ritual purposes."⁷⁶

Further, once an invention was made, its application was varied, i.e., it was utilized for purposes other than that it was originally intended to fulfil. The sexagesimal system, which was evolved out of an attempt at measuring Time, i.e., which was derived from the division of a year into 360 parts, was further utilized in the case of weights. Thus, the shekels, the manas and the talents of the Sumerian-Babylonian-Phoenician system were in the proportion of 60:1:60, or of 3600:60:1.

Similarly, too, once the art of writing was invented for purely commercial purposes, it gradually came to be used for many others. At first, it was used mainly for such purposes as were deemed to be of great practical utility, and this included the recording of religious and legal injunctions, social laws and regulations, prayers and even descriptions of gods. All these make it clear that religion as a means of sustenance of the social structure was erected unconsciously gradually since at least the neolithic days. It was a part

74. Weech, *World History*, pp. 72-73

75. E. B. (14), II, p. 252*i*.

76. Perry, *The Growth of Civilisation*, (Pelican), p. 63

and parcel of man's equipment in his fight against Nature, her vagaries and her furies. It is, therefore, quite natural that we find in the "Copper Age", and in the more fruitful phase of the same age, termed as the "Bronze Age", a tremendous development of religious ideas and especially ideas about divinities, their differentiations, development of a complex mythology over their names and deeds, etc.

CHAPTER XII

BRONZE AGE IN EGYPT AND MESOPOTAMIA

IN the last chapter, we dealt primarily with various aspects of the Copper Age civilization, together with the origin of the coinage, which, we saw, became current after the end of the Copper Age proper, throughout the ancient civilized world, and which was introduced in some countries even after the beginning of the Iron Age. We also witnessed in the last chapter the rise of a number of separate classes, following distinct "professions" such as the farmers, the potters, the weavers, the miners, the smiths, the traders, the robbers, the warriors, the scribes etc. We saw how the development of the Copper Age economy culminated in the rise of the states, some of which ultimately ripened into empires, whose hegemony was recognized by other states. Since the Bronze Age is only a development of the Copper Age, we cannot expect in it anything more than the development of the economy of the latter, not any rise of new classes, but the growth of those that had already come into being, not any change in the structure of the states which was not initiated in the Copper Age, but rather the development of whatever change was already introduced, during that age in howsoever small a degree. Thus, it would be natural for us to deal in the present chapter mainly with the growth and development of the Bronze Age civilization, which we shall do with special reference to only two countries, Egypt and Mesopotamia, where we find the Copper Age flourishing earlier and flowering into the Bronze Age more quickly and more vigorously than elsewhere.

Culture of the Middle Kingdom

Prof. H. R. Hall observes: "In connection with weapons it may be said that the Egyptians passed from the Chalcolithic to the Copper Age about the time of the IVth Dynasty, and from the Copper Age to the fully-developed Bronze Age during the Middle Kingdom."¹ By this is obviously meant that copper weapons mostly

1. CAH., I, p. 319. For an ancient model of an Egyptian, using a plough to which a couple of oxen are yoked, see plate III, No. 1. This is supposed to belong to a time between the VIth and the XIth Dynasty, i.e. before the real flourishing of the Bronze Age.

displaced those of stone by about the beginning of the IVth Dynasty, whereas those of bronze displaced the copper ones for the most part, during the Middle Kingdom, which is said to cover the XIth and XIIth Dynasties ruling at Thebes. It was about the time of the IVth Dynasty that we find the "hieratic" script coming into vogue, and also the greatest of the Egyptian pyramids being built up. The firm establishment of a vast empire in the Nile valley enabled the Pharaoh to look beyond the boundaries of Egypt, an ostensible motive for such encroachment being provided by the copper mines of Sinai and similar other mines of other countries in the neighbourhood.

As seen above, the foundations of the Bronze Age civilization, that developed fully in the XIth and XIIth Dynasties, were already being laid in the VIth Dynasty, with the knowledge of the art of mixing copper and tin. The chief weapons of the time of the Middle Kingdom were the same as those found during the days of the Old Kingdom. These included a very weak bow, arrows mostly having tips of flint and sometimes even those of hardened wood, a spear with a broad, flat blade, a small hatchet and a short sword or dagger. The hatchets and the swords were generally made of copper, when they were not of flint; but during the Middle Kingdom, bronze is also sometimes used, for fashioning these weapons. Stone continued to be used for making ordinary knives, used for cutting meat etc., and also for fashioning arrow-heads, which once shot off were likely to be lost. The stone-headed maces of the Old Kingdom disappeared during the Middle Kingdom. Towards the end of the Middle Kingdom, we find razors and daggers being made of bronze, and ordinary knives etc., being made of copper. We also come across "a new form of bronze sword, or rather scimitar (*khepesh*) of a peculiar kinked form"², that was perhaps introduced by the Hyksos, according to certain writers. The bronze used during this age was often finely tempered. The swords and hatchets were often finely worked, inlaid with gold: and they had well cut out ivory pommels, of a characteristic shape. Many of the bronze hatchets have representations of the Pharaoh or a warrior, slaying an enemy, or hunting lions, etc., or of lions and bulls fighting and so on.

The mines of copper, gold and turquoise at Sinai were worked vigorously by some of the Pharaohs of the Middle Kingdom, including the XIIth Dynasty kings Senusret I, Amonemhet (or Amenemhet) II, Senusret II, Senusret III and Amonemhet III—most of

² CAH, I, p. 319; cf. ibid., p. 572

whom have left their records on the rocks of Sinai. The institution of Empire developed and became more stabilized. The princes of the petty states (or *nomes*), called the "nomarchs", enjoyed during this time the same internal independence that they did during the Old Kingdom, but the Pharaoh was now powerful enough to deprive them of their independence to fight among themselves. Foreign relations had become a matter for the sovereign, and the nomarchs were no longer allowed to wage private wars with one another.³ It is during this epoch that in order to safeguard the interests of the vast empire and to checkmate the revolts of the nomarchs, the institution of co-regency was established for the first time in the history of the world. Another aspect of the Egyptian civilization of this time is the growth of the class of scribes and officials that protected the interests of the state. A centralized state-apparatus was created in the place of all-powerful feudal landlords—this representing a change from what may be called "primitive feudalism" to "early bureaucracy". The royal tombs of Abydos and other localities, containing inscriptions of the XIth and XIIth Dynasties, furnish us with ample evidence about scribes, superintendents, keepers of public granaries etc., as forming a separate "class of functionaries."⁴ This development is described by Prof. H. R. Hall as follows: "But a new element in the state had now appeared, which rendered the change from feudalism to bureaucracy easier than otherwise it would have been. This was a real middle-class of free townsmen and small landlords, which had not existed under the Old Kingdom. These people could supply the army of scribes and officials necessary for the new regime."⁵

The rise of the class of scribes went hand in hand with the development of language and literature. Indeed, "the Middle Kingdom is the classical period of the Egyptian language. . . . It is in the inscriptions of the Middle Kingdom that we find the language in its greatest purity."⁶ The growth of the middle-class of traders and landlords bespeaks a great commercial activity and development of craftsmanship. The growth of the middle class officialdom bespeaks the strengthening of the state-apparatus. But all these classes were ultimately dependent upon the development of metallurgy and the growth of slavery. As Prof. Hall remarks,

3. CAH., I, p. 302; cf. p. 309.

4. Dr. Birch, in *Records of the Past*, XII, p. 60; Rawlinson & Gilman, *Ancient Egypt*, ("The Story of Nations" series), p. 116

5. CAH., I, p. 312.

6. Ibid., p. 316.

it is the slaves that "contributed so much to the wealth of the XIIth Dynasty kings."⁷

As to the arts and crafts of this period, it is already pointed out by a number of eminent authorities that it is under the XIIth Dynasty, that the art of ancient Egypt probably reached its acme, especially in the field of jewellery, sculpture, wood-carving, painting etc.⁸ Some graves of this dynasty have yielded "an inestimable treasure of the jeweller's art of the time, in the shape of beautiful pectoral ornaments, bracelets and scarabs of gold inlaid with carnelian, jasper, lapis and green felspar, necklaces of solid gold cowries, beads of gold and amethyst and pendants in the shape of the claws of lions."⁹ The beads of this dynasty are mostly large ones and of spherical shape, and, in the opinion of Prof. Flinders Petrie, out-shine in magnificence those of any other age.¹⁰

Similar remarks about the arts and crafts of this time are made by other authorities, one of whom observes that "Under the XIIth Dynasty, Egyptian art reached its apogee of delicacy, taste and proportion. Nothing more beautiful in its own *genre* was ever produced in Egypt than the jewellery of gold and cloisonne stones, carnelian, lapis, felspar and amethyst, which has been found in the pyramids of kinds of this dynasty at Dahahur and Lahun. . . . But in artistic matters, the dynasty is pre-eminently associated in our minds with the most beautiful small art, the art of the jeweller, of the faience-maker, of the carpenter in rare and beautiful wood, of the clever carver in ivory and the cutter and glazer of the scarabs where beautiful spiral designs were derived from the art of the most artistic people of the ancient world, the Aegeans."¹¹ In the field of painting, we find a beautiful combination of colours and textures, a sense of proportion as well as of beauty. The wall-paintings of the tombs of Ameni and Khnumhotep are, perhaps the best examples of the painting of this period, and here we come across a great display of most of the colours of the rainbow. "The marvellous accuracy with which the finer of these tomb-paintings were executed in the darkness of Egyptian tombs is a matter for wonder and speculation."¹²

In effect, we find, the Bronze Age civilization had reached its fullest development in the days of the XIIth Dynasty. The class-

7. CAH., I, p. 318.

8. Weech, *World History*, p. 29.

9. CAH., I, p. 308. Beads were also made of carnelian, fayence, green felspar, etc.

10. Petrie, *Methods and Times in Archaeology* p. 15.

11. CAH., I, p. 576.

12. Ibid., pp. 575-576.

contradictions, the antagonisms between the different classes, had probably reached their full development already at this time. After the potentialities of the Bronze Age had been exploited, dissatisfaction and discontent were bound to increase and to express themselves, in course of time, in revolts of the subjects and invasions of the foreigners. Within the Empire, this discontent was usually more in evidence in the borderland, especially in backward tribes of that region: Such indeed was the case with most of the empires of the ancient world, since it was these tribes and regions that were exploited by the ruling classes with a more severe hand than the regions nearer the centre, which were generally and on the whole richer than the former.

The decadence of the Bronze Age civilization continued throughout the XIIIth and the XIVth Dynasties. The weakness of this civilization was clearly revealed by the short duration of the XIVth Dynasty and the invasion of the Hyksos, a tribe of the shepherds of the borderland, corresponding in some measure to the Abhiras of the ancient history of India. They swept over the fertile empire, sweeping off the complacency of the cultured Egyptians. Says an Egyptian record: "There came to us a king named Timaio. Under this king, then, I know not wherefore, the god caused to blow upon us a baleful wind, and in the face of all probability bands from the East, people of ignoble race, came upon us unawares, attacked the country, and subdued it easily and without fighting."¹³ Such revolts and invasions often only temporarily smoothed the edge of many of the contradictions though they did not at all eliminate them. The success of the Hyksos is often attributed solely to the war-chariot, that they brought into use for the first time in the history of this country, but it may also represent the victory of some representatives of a much-despised and down-trodden race on the eastern borders of "civilized" Egypt. The Bible also testifies to the fact that "every shepherd is an abomination unto the Egyptians."

It is no wonder, therefore, that later tradition retains a bitter memory of the invasion of the Hyksos: ". . . it still stirred the anger of Manetho after a lapse of twenty (or rather, fifteen) centuries. The victors were known as the 'Plagues' or 'Pests' and every possible crime and impiety was attributed to them."¹⁴ Pillage and arson, massacre of the male population and reducing to slavery of the female population and children, these followed in the wake of their victory. They proclaimed one of their chieftains, Salatis

13. Maspero, *The Struggle of Nations*, p. 51.

14. *Ibid.*, p. 57.

by name, as a Pharaoh, and levied a tax upon the vanquished. The realities of life, however, compelled them to adopt all the older institutions, including (as is obvious) slavery. A majority of them pursued their older ways of life, which was a "life of hunting and of tending cattle."¹⁵ But their "sovereigns seem to have realized from the first that it was more to their interest to exploit the country than to pillage it; as, however, none of them was competent to understand the intricacies of the treasury, they were forced to retain the services of the majority of the scribes, who had managed the public accounts under the native kings. Once schooled to the new state of affairs, they readily adopted the refinements of civilized life . They respected the local religions and went so far as to favour those of the gods whose attributes appeared to connect them with some of their own barbarous divinities."¹⁶

As to the continuity of tradition, it is observed: "The pursuit of science and culture of learning appear to have been more successfully perpetuated than the fine arts; a treatise on mathematics, of which a copy has come down to us, would seem to have been recopied, if not remodelled, in the twenty-second year of Apophis II."¹⁷ Again, the "Hyksos conquest had not in any way modified the feudal system of the country."¹⁸ The class-contradictions, inherent in the economy of the Bronze Age, continued to perpetuate despite the invasion of the Hyksos and the rebellions of others. There is no wonder, therefore, that the hegemony of the Hyksos did not remain unchallenged for long, and that a great political fermentation is to be witnessed in the time of the later dynasties.¹⁹

It will be seen in a succeeding chapter that the beginning of the Iron Age in Egypt is to be placed in the days of the XIXth Dynasty. Until that time, it was felt necessary by the ruling classes to preserve their hold by strengthening their arms by developing the bronze weapons that they had. It is, therefore, quite natural to find that "Under the XVIIIth Dynasty, bronze weapons reached their highest development."²⁰

The civilization of the XVIIIth dynasty, representing the end of the Bronze Age in Egypt, is marked by growth in a number of fields. Though divested of the fineness of spirit and delicate balance of the time of the XIth and XIIth Dynasties, the art of this

15. Maspero, *The Struggle of Nations*, p. 61; cf. p. 52, etc.

16. Ibid., p. 58

17. Ibid., p. 60

18. Ibid., p. 72.

19. Ibid., p. 73.

20. Guide: EC, p. 147

age retains the strength and boldness of design. "A delicate low-relief under the XIIth dynasty developed into the less careful, but finely painted, style of the XVIIIth dynasty, as exemplified in the temple of Queen Hatshepsut at Dair al-Bahri."²¹ Glazed pottery, that came into existence as a product of the Copper Age culture, developed in both beauty and volume with the development of the Bronze Age—this beauty being maintained throughout the period beginning with the XIIth Dynasty and ending with the XVIIIth. True glass came into existence in the Middle Kingdom, and became popular about the middle of the XVIIIth Dynasty.²² Polychrome glass appears somewhat suddenly in this dynasty, but it is at the same time marked out by beauty and excellence. Common pottery, however, becomes inferior and rougher during the period from the XIIth to the XVIIIth Dynasty, when "a rough red ware decorated with spots of the white paint is common".²³ New varieties like handled vases begin to appear in the XVIIIth Dynasty.

But although the lower classes must have on the whole suffered, the upper classes appear to have succeeded in utilizing their longer swords and better weapons for increasing their wealth. This increase in the wealth of the upper classes is revealed by a number of factors, including the apparel of both men and women of those classes, which during the XVIIIth and the XIXth Dynasties "was often very voluminous."²⁴ Toilet boxes, containing eye-paints, unguents, pomades etc., begin to be commonly found in tombs, since the XVIIIth Dynasty.²⁵ The priests were able to appropriate a large proportion of the land of Egypt as temple property, already in the days of the XVIIIth Dynasty; and this they continued to increase till they had acquired half of the empire, during the XXth Dynasty. A new development is to be witnessed in the upper strata of the society: The priests became "the real rulers of the state. A combination of the royal and chief-priestly families brought the 'Priest-kings' to the throne under the XXIst Dynasty, after whose time the political power of the priests declined, although they always formed a powerful class apart from the rest of the people, if not strictly speaking a caste."²⁶

Although the Iron Age in Egypt commenced in the XIXth

21. Guide: EC, p. 166.

22. Ibid., p. 142. Cf. Flinders Petrie, *Methods & Limits in Archaeology*, p. 15:—"In the XVIIIth Dynasty, the immense variety of glass and glazed beads defy enumeration."

23. Guide: EC, p. 140.

24. Ibid., p. 110.

25. Ibid., p. 127.

26. Ibid., p. 185.

Dynasty, bronze continued to be used for tools and weapons till the XXVth Dynasty. For pans, cauldrons, situlae etc., copper and bronze continued to be used throughout the later Egyptian civilization.²⁷ It may be pointed out here incidentally that the protagonists of the word "chalcolithic" have failed to invent a similar word to describe the period or the civilization of the period, during which the Bronze Age weapons were being gradually replaced by those of the Iron Age.

Development of the Bronze Age in Mesopotamia

On account of the rich complexity of the materials presented by the archaeology of Mesopotamia, it is not possible to present here a simplified treatment of the development of the Bronze Age of that country; and even for the sake of variety, it may be desirable to give it here a different treatment than that meted out in previous pages about the Bronze Age in Egypt.

Uruk Culture

As early as 1932, the following observation could be confidently made: "The combined evidence from Erech, Ur and the Kish area has already established a long sequence of civilizations prior to the archaic period, which excavators in Iraq have agreed to call (1) the al'Ubaid (al'Obeid) ware period, (2) the Erech (Uruk) ware period, (3) the Jamdet Nasr ware period."²⁸ We have seen above that the al'Ubaid period falls in the Copper Age. It is in the Uruk period that we come across the earliest tools and weapons made of bronze. This transition of the Mesopotamian Copper Age into the Bronze Age is to be witnessed in a number of localities, including Sialk (at Sialk III), Tepe Hissar (at Hissar I), and other places,²⁹ where we meet both the al'Ubaid Culture and the Uruk Culture. Here we can notice a developed city civilization, that was familiar with cast metal implements (including shaft-hole adzes), potter's kilns, well-advanced structures of kiln-fired bricks, having buttresses and recesses etc. The site of Erech (Warka or Uruk), where the culture of the beginning of the Bronze Age in Mesopotamia was first unearthed, has yielded, *inter alia*, plain, wheel-made, unpainted, burnished, brick-red or plum-red ware, clay tablets with impressions from cylinder seals and some of the

27. Guide: E.C., p. 147.
 28. JRAS. (1932). pp. 1078-74.
 29. Daniel, p. 210f.

earliest examples of a ziggurat, besides other structures of kilu-bricks. The seals and sealings of the Uruk period depict the figures of bearded human beings, wearing shirt-like garments, domesticated and other animals. Some of these scenes depict some of the earliest known war-chariots, and also some of the earliest scenes of war. The numerals, found on the seals, reveal a sexagesimal system of reckoning, prevalent in this area, but they also show that a decimal system was in addition employed.³⁰ "The excellence of the seals upon their first appearance in the Uruk Period is amazing."³¹

These facts would probably prove that these seals were imported from outside, perhaps from the Indus Valley, where such cylinder seals appear to have been of native origin and where they were in a great vogue throughout the Bronze Age. Facts, relating to the beginning of the Bronze Age in the Indus Valley, given below, do not make it altogether improbable that Mesopotamia owed many aspects of the civilization of the Bronze Age, including, perhaps, the use of bronze, to the far-advanced city civilization of the Indus Valley. That is, the culture of the Uruk period was, perhaps, introduced from the Indus Valley. Beyond stating such a possibility, however, it would be dangerous to go; for, in this field, such tentative conclusions are always in the danger of being disproved by fresher evidence that is coming to light with the passing of almost every year.

Among other antiquities of the Uruk period, one may include beads of turquoise, carnelian, lapis lazuli and other semi-precious stones, articles made of copper, lead and silver. The Uruk period is represented, *inter alia*, at the following sites: Uruk (Levels V-X), Tepe Gawra (Levels XI-VIIIb), Tell Uqair (Levels V-VIII), Nineveh (Levels III-IV), Anau II, Hissar II, Susa IB, Yumuk Tepe or Souk Su Huyuk (the Mersin Tell) (Levels XIII-XIV). Sialk (later part of Level III), etc. A noteworthy aspect of this culture is the painted frescoes that cover the walls of the temples of Uruk, Tell Uqair etc. Stone architecture, attested by the existence of a pavement of rough limestone blocks found at Uruk, is to be first met with in this period in Mesopotamia. And the massive ziggurat of the same period and locality, though formed out of a mass of compact clay, was imposing enough: It measured 140 by 150 feet, and was 30 feet high. Its original whitewash, still preserved at the time of excavation, enabled the German excavators to name it "the White Temple", while another with reddish paint was named "the

30. Childe, N.I.M.A.E., p 155 J Finegan, p. 22

31. Ibid., p 21

Red Temple". The polychrome painting, depicting an eight-pointed star, found on a fresco at Teleilat el-Ghassul, may also be, perhaps, attributed to this period.

Jamdet Nasr Culture

The next period, represented by the Jamdet Nasr culture, is characterized by polychrome pottery with intricate lattice work on check-patterns, done in black and yellow on red.³² Jars of various types, e.g., spouted, keeled, lugged or handled, as well as handled cups, spouted bowls and some theriomorphic types of vessels characterize the pottery of these strata. This pottery is often polished and is decked generally with geometric designs, and occasionally with naturalistic ones, taken from the animal world. On a stele of this period are found beautifully carved figures of hunters fighting lions. Indeed, sculpture *in stone* is one of the most remarkable achievements of this period in Mesopotamia. The Jamdet Nasr strata have also yielded flat chisels, axe-heads, fish-hooks and other objects of copper, and pins and amulets of bones. During this period the settlements at Kish, Tell Asmar and other sites begin to take shape. Jamdet Nasr, Erech (or Uruk, II-III), Susa II, Jericho (Level VIII), Sialk IV, Uqair II-IV etc., are among the most important localities where we come across the "Jamdet Nasr Culture". According to Prof. V. Gordon Childe, the Uruk and Jamdet Nasr cultures "are represented not only in Sumer but also in the later Akkad, as far north as the junction of the Diyala and Tigris near Baghdad and up the Euphrates to Mari, opposite the mouth of the Khabur."³³

That the authors of the Jamdet Nasr Culture were Sumerians is, according to Prof. V. Gordon Childe, "demonstrated from the tablets found at Jamdet Nasr and Erech. The pictorial symbols employed in the Uruk period have now been invested with phonetic values and can spell words as well as denote ideas. And these words seem to be very archaic Sumerian. Yet curiously enough at Jamdet Nasr a decimal system of notation was still employed predominantly, though at Erech, this system co-existed with the sexagesimal."³⁴ Whatever that be, it appears clear that there was a mixture of population and that there was a certain element that used the decimal system at least occasionally.

32. Daniel, p. 202.

33. Childe, WIH, p. 81 J. Finegan, p. 23.

34. Childe, NLM AE, p. 158-59. See above, p. 248.

as a matter of habit which it had acquired in its native lands that lay further east.³⁵

After the Jamdet Nasr period begins the dynastic epoch of the archaeology of Mesopotamia, from which time usually the historical period of that country is supposed to begin. The scenes of hunting and of wars that are found among the representations of the Uruk and Jamdet Nasr periods, already emphasize the growth of that aspect of the ancient culture of the metal age, which brings into limelight successful warriors and warrior-kings, throwing into total oblivion the followers of peaceful pursuits. The rise of the city-states under the leadership of chieftains, commanding military power, speaks of an organized life of those cities. But the roots of the military leadership of such chieftains are also to be traced to the "spiritual" or "religious" leadership, that they appear to have originally enjoyed. For if in Egypt, the earliest Pharaohs were also the supreme religious authorities in their land, in Mesopotamia, too, we find that the earliest chieftains were "priest-kings". Secularization of this leadership or gradual bifurcation of the original functions of these "priest-kings" and ultimate subordination of the sacerdotal role may be said to mark an advance of the civilization of the Copper Age.

City-States and Early Dynastic Culture

Dynasties No. 1 and No. 2 of Mesopotamia are supposed to have belonged to the cities of Kish and Uruk (or Erech) respectively, and are considered mythical. Dynasty No. 3, better known as the First Dynasty of Ur, also considered mythical, was resuscitated by the find of a lime-stone tablet inscription, containing the names of the founder of this dynasty and his son. This tablet was unearthed at al'Ubaid, and was a sort of foundation-stone of a temple. Along with it were found a number of copper bulls and copper reliefs, showing a highly developed technique in metal-working. There were also mosaic-friezes and bird-friezes, which would show the development of the sculptor's art. At the same site was found a great copper relief, "representing in heraldic fashion an eagle grasping two stags; there were the fore parts of lions, nearly life-size, made of copper hammered over bitumen and wood with inlaid eyes and white shell teeth through which protruded tongues of red stone."³⁶ We see how art developed rapidly after the introduction of the Bronze Age.

35. See below, especially our remarks on the use of the decimal system in the Indus Valley, in the next chapter.

36. Woolley, *Ur of the Chaldees* (Pelican), p. 65.

Most of the major and minor arts, trades and crafts that we come across during the dynastic epoch of Mesopotamia are to be already met with in the al'Ubaid, Uruk, and Jamdet Nasr periods; but there exist, as is shown by Prof. V. Gordon Childe, "startling" quantitative differences between the products of these predynastic periods and those of the dynastic ones.³⁷ Further, it appears that at least some innovations were introduced during this dynastic epoch for the first time. Thus, the system of irrigation and field-engineering appear to have been first introduced in the history of the world probably during the early dynastic period of Mesopotamia. This fact is sufficient to bring out the strength of the social organization during this period. The concentration of political, organizational and religious power in the hands of the Sumero-Chaldean priest-kings ultimately culminated in the deification of those kings. Indeed, the institution of kingship itself was supposed to have alighted from the high heavens, first in the city of Kish, immediately after the chaotic floods had vanished or receded.

The "Patesi" or "Priest-King"

Wealthy towns and their rulers had to protect themselves from the raids of their enemies, and this was done by erecting walls around those towns or the residences of those rulers. As Prof. Breasted states: "Around the temple and its mount were grouped the store-houses and business offices of the temple, while a massive wall forming an inclosure surrounded and protected the whole... Here ruled a wealthy priesthood. Assisted by a group of scribes, . . . they rented and cared for the temple lands and property. The king or ruler of the town at their head was really also a priest called a "patesi"... His temple duties kept him about as busy as did the task of ruling the community outside of the temple walls."³⁸

The patesi was the leader in peace and war, the chief administrative authority, the foremost judge, the first warrior, the head priest, all rolled into one. He "drilled his soldiers, and commanded them in battle, when a neighbouring city seized outlying strips of good land or raided the palm-groves. For these services he was rewarded with payments in kind."³⁹ "To him the trader looked for the safeguarding of his property, the farmer for the certainty of his water-supply, the criminal for the punishment of his crime."⁴⁰

37. Childe, N.I.M.A.T., pp. 168-169.

38. Breasted, *Ancient Times*, p. 113.

39. Weech, *World History*, p. 13.

40. *Ibid*.

About the economic life and the polity of the city-states, ruled over by the *patesis*, we may quote again from Prof. Breasted: "We see a class of free landholding citizens in the town, working their lands with numerous slaves and trading with caravans and small boats up and down the river. Over these free, middle-class folk were the officials and priests, the aristocrats of the town. Such a community, owning the lands for a few miles around the town, formed the political unit or state, which we call a city-kingdom"⁴¹ or a city-state. Elsewhere we learn: "The tablets from Drehem show how numerous these *patesis* were in the time of the Dynasty of Ur. We know of more than forty districts or townships controlled by them, and in fact almost complete lists of *patesis* can be made from Umma, Nippur and Lagash from the thirty-fifth year of Dungi until the third of Ibi-Sin."⁴² The state of affairs about division of the country into petty districts appears to be almost the same as that found in Egypt—even the number is about the same

Degradation of the Title of "Patesi"

Prof. Weech describes the conquest and absorption of the smaller city-states into the bigger ones—the process of the bigger fish swallowing the smaller ones—in the following words: "The land had no clear natural boundaries; some cities became stronger and annexed more territory; others dwindled and became subject to powerful neighbours. In spite of warfare the general conditions of life improved."⁴³ And as the frontiers of some of these states expanded, some of these *patesis* began calling themselves *lugals* or kings. After having conquered the *patesis* of other city-states, the *lugals*, however, allowed them to stay where they were and act as their governors, taking away from them their independence to fight among themselves. It was only after the *lugals* had become more powerful that they began transferring the *patesis* from one city to another, when the position of the latter was reduced to no more than that of a paid administrator or a governor; and their posts were no longer hereditary.

In support of our statements, we may quote Prof. R. C. Thompson: "As time goes on and we reach the period of the Dynasty of Ur about the middle of the third millennium, we can be more definite; the *patesi* from being the chief secular and religious ruler of a city-state drops to a position of dependence on the overlord, who

41 Breasted, 1 c., p. 119.

42 CAH., I, p. 509. (Italics ours).

43 Weech, *World History*, p. 13.

is now holding the reins of control of the nucleus of an empire in his hands. He has sunk to the minor position of a local governor, naturally enough as the stronger states absorbed the weaker.... The *patesi* remained in control of his township, but it was as a minor official.... Although the power of the *patesis* declines, even in the time of the Dynasty of Ur, they had the right of legal decision; they were, however, compelled to pay taxes, and might be transferred from one district to another."⁴⁴ Again, "With the advent of the Semitic kings of the Isin and Larsa dynasties in 2357, the office of *patesi* was shorn of much of its splendour, and although it continued to exist, the mayor of provincial towns (called *rabianu*) was soon to become a more powerful personality. . . The word *patesi* now represents an officer, who takes his orders not directly from the king, but from some official between him and the king."⁴⁵

At times, we obtain archaeological evidence about some powerful *patesis* overthrowing their overlords. Thus, we have a couple of fragmentary inscriptions of Ur-Nammu, the founder of the III (or the last) Dynasty of Ur (viz Dynasty No. 19 of Mesopotamia), which record the erection of some temples, and in which "he prays for the life of Utu-khegal, the king of Erech, calling himself only by the title of 'governor'."⁴⁶ From this, "it is clear that when these temples were built, Ur-Nammu was a vassal of Utu-khegal; it was by rebellion against his master that he made himself overlord of the empire."⁴⁷ This would show that despite the degradation of his title and authority, a *patesi* was at times in a position to assert himself in the face of a weak central authority, especially in the event of an economic or political crisis, an uprising of the malcontents or the demise of the sovereign. The *patesi* was, therefore, to be respected, and we find many a *patesi* taking the hand of a daughter of the sovereign ruler.⁴⁸

With the aid of these *patesis* or governors, the later rulers of the fertile valley of Mesopotamia amassed a deal of wealth. With this wealth they could purchase costly articles, imported from abroad, build for themselves huge temple-palaces, keep a large retinue and so on. But, unfortunately for us, most of this wealth, that they enjoyed during their life-time, has vanished and is lost for posterity. Only a small fraction of it has been preserved, and

44. CAH., I, pp. 508-509.

45. Ibid., p. 510.

46. Woolley, *Ur of the Chaldees*, p. 80. Not very long after we find Nur-Sin I of the same dynasty being acknowledged in Ashshur as a suzerain in a dedicatory inscription of the temple of the 'Lady of the Palace' (Ishtar)

47. Ibid.

48. CAH., I, p. 509

that, too, not in the buildings that they dwelt in or worshipped inside, but in the graves in which they were ceremoniously buried after they had breathed their last. Perhaps, it is only the semblance of the real glories of the court-life of the great rulers of Mesopotamia that a modern archaeologist can dig out of the royal graves, such as those found at Ur (or Uru) of the Chaldees, or perhaps, it may be something more than that. But we can hardly decide about this for certain. We shall, therefore, only learn of these glories from one who excavated them in the royal graves at Ur.

The Glories of Court-life in Graves

In the lower cemetery of Ur of the Chaldees, which pertains to the Bronze Age rather than to the Copper Age, one finds a great difference between the "burials of two sorts, the graves of commoners and the tombs of kings."⁴⁹ The former are said to be a hundred times as many as the latter in number, and they too have yielded very fine objects and afforded precious evidence for the dating of the cemetery. The more ancient of them are clustered round the royal tombs, whereas the later ones, erected probably after the memory of the royal tombs had faded, appear to cover them up or occasionally dig right into them. A commoner's grave usually consisted of a rectangular pit, at the bottom of which lay the body of the dead man, either covered up in matting, or laid down in a coffin, that was made "usually of wood or wicker-work, sometimes of clay".⁵⁰ With the dead were usually found some of his personal effects, including pins, ear-rings, beads, knives or daggers and occasionally cylinder-seals, representing so to speak the identity-cards in the world of spirits. Sir Leonard Woolley states that "in the early cemetery and in the cemetery of the Sargonid age, which lay immediately above it, we have dug and noted more than 1,400 private graves,"⁵¹ together with half a dozen royal tombs.

While digging in the area of the royal tombs in 1926-27, Sir Leonard made his first two important discoveries: "At the bottom of an earth shaft, amongst masses of copper weapons, there was found the famous gold dagger of Ur, a wonderful weapon whose blade was of gold, its hilt of lapis lazuli decorated with gold studs, and its sheath of gold beautifully worked with an open-work pattern derived from plaited grass; with it was another object scarcely less remarkable, a cone-shaped reticule of gold ornamented with a

49. Woolley, *Ur of the Chaldees*, p. 27

50. *Ibid.*, p. 29.

51. *Ibid.*, p. 32

spiral pattern and containing a set of little toilet instruments, tweezers, lancet and pencil, also of gold.”⁵² It would be interesting to compare this gold dagger, on the one hand, with the decorated neolithic daggers of Egypt, found by Dr. F. Petrie, and on the other, with the ornamented golden daggers or swords of the Pandavas, referred to in the *Mahabharata*. Further digging at Ur unearthed a pavement-like structure, and some vaulted and domed chambers, built in lime-stone, that had to be brought to this locality from afar. It is peculiar to notice that the vaulted chambers are elongated, while the adjacent domed ones were square, and that “never more than two of them are alike.”⁵³ Two of these royal graves, “identified as those of King A-bar-gi and Queen Shub-ad, found adjacent to each other, were exactly alike. Each of them consisted of a pit open to the sky, with a passage leading to a single room, that had walls of limestone and a roof of burnt bricks.”⁵⁴

In one portion of the cemetery, five bodies were found, but “except for the copper daggers at their waists and one or two small clay cups they had none of the normal furniture of a grave.” The mere fact that these bodies were found in a group was unusual at this site, and it indicated that it was the grave of a chieftain. The excavator says: “Then below them, a layer of matting was found, and tracing this along we came to another group of bodies, those of ten women carefully arranged in two rows; they wore head-dresses of gold, lapis lazuli and carnelian, and elaborate bead necklaces.”⁵⁵ The furniture included besides, a wonderful wooden harp with decoration intact, its beam capped with gold and fastened with gold-headed nails that secured the strings, and its sounding-box decked with a mosaic in red stone, lapis lazuli and white shell. The front of the harp was also decked with the golden head of a bull, the eyes and the beard of which were of lapis lazuli. The harpist himself, who wore a golden crown, had left his bones besides the remains of the harp.⁵⁶

Entering the pit, the excavator found “a wooden sledge chariot, decorated with red, white and blue mosaic along the edges of the frame-work and with golden heads of lions having manes of lapis lazuli and shell on its side panels; along the top rail were smaller

52. Woolley, *Ur of the Chaldees*, p. 23. Compare Mihir (BORI, edn.), IV.38 30f., and IV.38 54f., where the swords of the Pandavas are said to possess golden handles. Compare also similar swords mentioned in the succeeding chapters.

53. Woolley, *Ur of the Chaldees*, pp. 34-35.

54. Ibid., p. 35.

55. Ibid., 35f.

56. Ibid.

gold heads of lions and bulls, silver lioness's heads adorned the front."⁵⁷ Elsewhere, two other silver heads of lionesses were found. The chariot was drawn by a couple of asses, the skeletons of which had beside their heads the bodies of their grooms. There were other vestiges, including a double ring of silver and "a gold 'mascot' in the form of a donkey, most beautifully and realistically modelled,"⁵⁸ etc. A "gaming-board", was also unearthed here.⁵⁹

There were also some chisels and a saw, made of gold, that were apparently never meant to be used in life-time, but only in the life after death! There were also other articles of gold, including a long tube, some vessels etc. There were some silver articles, such as some tall slender tumblers, a couple of lion-heads etc. Besides there were found some vessels of copper and some others of semi-precious stones like lapis lazuli, marble, alabaster, and of volcanic glass etc. Outside the royal grave chamber were found bodies of half a dozen of soldiers, equipped with lances and helmets of copper. At another place, there were a couple of "four-wheeled waggons, each drawn by three oxen", with the bodies of the grooms near the heads of the oxen and those of drivers inside the waggon themselves.⁶⁰ Lavish use of lapis lazuli for mosaic decoration in a number of wooden objects in the furniture is observable here.

Elsewhere, beside a wall in that grave, were found nine more bodies of women, who appeared to have worn "the gala dress of lapis and carnelian beads from which hung golden pendants in the form of beech-leaves, great lunate ear-rings of gold, silver 'combs' like the palm of a hand with three fingers tipped with flowers whose petals are inlaid with lapis, gold and shell, and necklaces of lapis and gold."⁶¹ Here and elsewhere were found some other wooden harps, showing that these secondary ladies of the court were often accomplished in the art of music etc. There were also found some curious-looking shell-plaques, on which were engraved scenes of animals acting like human beings.

Finally, in the Queen's room was found the body of the Queen herself, with a golden cup near her hand. The "upper part of the body was entirely hidden by a mass of beads of gold silver, lapis lazuli, carnelian, agate and chalcedony, long strings of which hang-

57. Woolley, *Ur of the Chaldees*, p. 36

58. Ibid., pp. 36-37.

59. Ibid., p. 37. See Plate Vb in the same book. Similar ones have been in use in India since probably very ancient times, for playing a number of games, including chess (or Aksha), Ashta-pada, Dasa-pada etc. See *Dighanikaya*.

60. Woolley, *Ur of the Chaldees*, p. 38

61. Ibid., p. 38.

ing from a collar, had formed a cloak reaching to the waist and bordered below with a band of tubular beads of lapis, carnelian, and gold: against the right arm were three long gold pins with lapis heads and three amulets in the form of fish, two of gold and one of lapis, and a fourth in the form of two seated gazelles, also of gold."⁶² The head-dress was an elaborate work of art, with a broad golden band, decorated with three golden wreaths, strung on the chains of lapis lazuli and carnelian beads. A golden comb, with the decoration of flowers, the pericarps of which were made of lapis lazuli, large-size golden ear-rings, that originally hung down the ear-lobes, some lapis amulets etc., completed the lasting ornamental make-up of the Queen.⁶³

62. Woolley, *Ur of the Chaldees*, p. 40
63. Ibid., p. 38f.

CHAPTER XIII

COPPER AND BRONZE AGE IN INDIA

Discovery and Extent of the Indus Civilization

THE third decade of this century has proved to be the most remarkable period in the annals of Indian archaeology. The discovery of Mohenjo-daro by an Indian savant, Prof. Rakhal das Banerji, in 1922, and the evaluation of the civilization found there made by Prof. A. H. Sayce, Prof. S. Langdon and others, who compared it successfully with the so-called "chalcolithic" civilization of Mesopotamia, provided a material support to the claims of some Indian savants about the antiquity of the culture of this land. It was at once perceived that this ancient and highly-developed civilization was far flung. Mohenjo-daro, in the Larkana District of Sind was only one of the most important cities that characterized this civilization.¹ Harappa, in the Montgomery District of the Punjab, was another. What is more, this latter centre was discovered long previously, though its importance was not recognized until the discovery of Mohenjo-daro; it was bigger than Mohenjo-daro; and lastly, it lay at a distance of about 400 miles from the latter city.² As Prof. V. Gordon Childe points out, the total area, where the vestiges of this civilization have been found, exceeds the area of both the Mesopotamian (or Sumero-Babylonian) civilization and the Egyptian civilization. Other important centres of this "Indus civilization" include the ancient cities of Chanhu-daro (in the Nawabshah District, Sind³), Amri⁴ and Ali Murad⁵ (both in the Dadu District, Sind), Nal (beyond the Khirthai, in Baluchistan⁶) etc. The extent of this civilization may be briefly indicated by drawing attention to the relics found thereof at Rangpur in the State of Limdi in Kathiawar^{6a} and at Kotla Nihang, near Rupar or

1. Marshall, Vols. I-III; Mackay, FLM, Vols. I-II.

2. Vats, EH, Vols. I-II; R.E.M. Wheeler, *Harappa* 1946. the Defence & Cemetery R 37. (*Ancient India*, No. 3, January, 1947).

3. Majumdar, p. 35f. Mackay, CE.

4. Majumdar, p. 24f.

5. Ibid., p. 80f.

6. Hargreaves, *Excavations in Baluchistan*; Stein, ATWB, ATG and IIB.

6a. Now see Dr. M. G. Dikshit's "Excavations at Rangpur". Bulletin, Deccan College Research Institute (1950).

Ropar, in the Ambala District—this latter site being at a distance of about 220 miles east of Harappa.

Speciality of the Indus Civilization

With all the subsequent discoveries, the feeling that was originally created in the minds of the enlightened public with the discovery of Mohenjo-daro has not yet been chiselled and chasterised into a historical conception that would show clearly the beginning and the disappearance of this ancient culture of the Indus Valley; and even today, the famous words in the Bhagavad-gita, referring to the birth or rise of an entity out of "Avyakta" and its disappearance into "Avyakta", appear (in a different sense, of course) to be applicable to this culture. The excavations, carried out at Mohenjo-daro during the first decade after the discovery of this site, revealed a culture, which is summed up by Sir John Marshall in the following words:

"They exhibit the Indus peoples of the fourth and third (correctly third and second) millenia B.C., in possession of a highly developed culture in which no vestige of Indo-Aryan influence is to be found. Like the rest of Western Asia, the Indus country is still in the Chalcolithic Age⁷—that age in which arms and utensils of stone continue to be used side by side with those of copper or bronze. Their society is organized in cities, their wealth derived mainly from agriculture and trade, which appears to have extended far and wide in all directions. They cultivate wheat and barley as well as the date palm. They have domesticated the humped zebu, buffalo and short-horned bull, besides the sheep, pig, dog, elephant and camel; but the cat and probably the horse are unknown to them.⁸ For transport they have wheeled vehicles, to which oxen doubtless were yoked. They are skilful metal workers with a plentiful supply of gold, silver and copper. Lead, too, and tin are in use, but the latter only as an alloy in the making of bronze. With spinning and weaving they are thoroughly conversant. Their weapons of war and of the chase are the bow and arrow, spear, axe, dagger and mace. The sword they have not evolved⁹; nor is there any evidence of defensive body armour. Among other implements,

7. In view of the criticism of this term, given elsewhere, we should replace it by the term "Bronze Age".

8. Representations of the so-called "Unicorn" are a direct evidence, that proves that the authors of the Indus civilization were familiar with either the ass or some ass-like animal, possibly the horse. Vide also C. R. Roy's article in the *Science and Culture*, XI (1945-46), p. 408f.

9. Vide infra, pp. 286f.

hatchets, sickles, saws, chisels and razors are made of both copper and bronze; knives and celts sometimes of these metals, sometimes of chert or other hard stones. For the crushing of grain they have the muller and saddle-quern, but not the circular grind-stone. Their domestic vessels are commonly of earthenware, turned on the wheel and not infrequently painted with encaustic designs; more rarely they are of copper, bronze or silver. The ornaments of the rich are made of the precious metals or of copper, sometimes over-laid with gold, of faience, ivory, carnelian and other stones; for the poor, they are usually of shell or terracotta. Figurines and toys, for which there is a wide vogue, are of terracotta,¹⁰ and shell and faience are freely used, as they are in Sumer and the West generally, not only for personal ornaments but for inlay work and other purposes. With the invention of writing, the Indus peoples are also familiar, and employ for this purpose a form of script which, though peculiar to India, is evidently analogous to other contemporary scripts of Western Asia and the Nearer East."¹¹

Not "Chalcolithic" but "Bronze Age" Civilization

We have shown above how tradition dies hard, or rather, how difficult it is to discard it: We have shown there how difficult it was for man to equip himself with the new implements of copper, bronze or iron, and to discard those of stone, even long after he had come to realize the importance of the former. The truth is that in ancient times, scientific planning on a mass scale and for the benefit of the masses, which enables us to discard old-fashioned implements within a few decades, could not be even dreamt of: Ideological level, which makes possible thinking in terms of conscious scientific planning for the benefit of the whole society, was naturally far beyond the reach of the men of the early metal age. The policy of drift, with the profit motive supplying the main impetus for progress, governed, not only in those days, but up to the end of the first quarter of this century, the main current of progress in life. The result was that the "poorer" folk had to content themselves with older and out-of-date implements—with those of stone—throughout the "Copper and Bronze Age", when the "richer" sections of the populace gradually equipped themselves with those of copper or bronze. Elsewhere, by clarifying the significance of the

¹⁰ The reference here is to the figurines of the mother goddess, and the representations of bulls and other animals, which were not actually "toys", but icons, embodying the religious ideas of the Indus Valley people.

¹¹ Marshall, Preface, pp v-vi.

"ages" in archaeology,¹² we have shown how erroneous it is to call the Indus Valley civilization a "chalcolithic civilization", when it did not belong either to the "Stone Age" or to the "Copper Age", and when it had already entered the Bronze Age.

The observation of Sir John Marshall (quoted above)—which, defining the "chalcolithic age" as "that age in which arms and utensils of stone continue to be used side by side with those of copper or bronze", contains for the layman the most authoritative characterization of that period—would, indeed, bring out clearly the vagueness, with which the term "chalcolithic" was first used in India, as nothing else would, perhaps, do. He would have us believe that throughout the long period of the "Harappa Culture" (or the civilization of Mohenjo-daro and Harappa), the culture remained in the same "chalcolithic" stage, that all the comparable strata in Mesopotamia etc., are called "chalcolithic", that they are to be dated in the fourth and the third millenia B.C., that the arms, implements and utensils of stone continued to be in vogue in the Indus Valley during the whole period, and lastly, that it is sufficient for a culture to be known as "chalcolithic", if it uses arms, implements and utensils of stone even if that be along with the use of copper and bronze arms, implements and utensils. Indeed, the inappropriateness of the term "chalcolithic" appears to have been at least partially apprehended even by Sir John Marshall, when he himself observes at another place: "A few stone celts, it is true, that have been found at Mohenjo-daro and Harappa and the flint implements (possibly ploughshares) . . . are typical stone artifacts, but, surprising as it may seem, these objects signify little or nothing as to actual age, since they continued in use, albeit, perhaps, among jungle folk only, right down to medieval times."¹³

But perhaps the credit of first pointing out clearly the inappropriateness of the term "chalcolithic" with reference to this civilization belongs to the late Rao Bahadur K. N. Dikshit, who observes: ". . . . but except scrapers of the ribbon flake variety and the cores of chert from which these were chipped off, there are few other examples of stone implements (at Mohenjo-daro). The continued use of stone scrapers (which may indicate a survival from a far earlier neolithic stage, adopted owing to its convenience or for some ritual significance) does not warrant the assumption of a chalcolithic or 'copper-stone' age."¹⁴

12. See above Chapter VI

13. Marshall, p. 30

14. Dikshit PCIV, p. 53 Cf. Mackay, EIC, p. 7. "The writer also considers it a mistake to term the ancient civilization of Mohenjo-daro and Harappa chalcolithic, in spite of the fact that stone implements have been unearthed in both

This is not to deny the very existence of an earlier Copper Age in India. Indeed, such an age appears to be, perhaps, proved by the existence of a large number of copper implements, found over a few dozen sites, in the riparian plains of northern India; and these implements contain but little or no admixture of tin, lead or other impurities. There are, however, others found in the same plains, that show an admixture of tin in varying percentage, e.g., 4, 7, 8, or 12,¹⁵—a fact, which shows that the ancient inhabitants of India had also learnt the art of, and experimented with, making bronze. Thus, one can visualize the introduction of the Bronze Age civilization in ancient India after the introduction of the Copper Age. But there is no certainty, *inter alia*, about all the copper objects, found in the Gangetic plain and elsewhere in northern India, being anterior to the known weapons of the Indus Valley civilization. There is also no certainty about any of these weapons, or those of the earliest known strata at Mohenjo-daro and other sites of the Harappa Culture, having at all belonged to the Copper Age, *properly so called*. It must be remembered that some of the bronze objects, containing a high percentage of tin, were unearthed at Mohenjo-daro at considerable depths, just as many others, containing only a little or no admixture of that metal, were unearthed in upper layers: "For instance, bronze containing no less than 22.2 per cent of tin was found at the level 30.4 feet below datum and another piece with 8.3 per cent of tin 33.4 feet below datum."¹⁶ Such a high proportion of tin in some of the earliest

places. These stone implements are simple ribbon-flakes of flint which served as knives, and specimens, together with the cores from which they were struck, have been found in most of the houses. Another kind of stone implement discovered is rectangular in cross-section and not unlike a celt in form; it was probably a plough-share, but these are very rare."

Note that Sir John Marshall also states: "Copper has already to a large extent taken the place of stone for the manufacture of weapons, implements and domestic utensils such as lance-heads, daggers, knives, axes, chisels, vessels etc. (*Mohenjo-daro and the Indus Civilization*, I. p. 30). Again he states elsewhere: "Just as copper and bronze had already superseded stone for weapons of war and the chase, so, too, they had superseded stone for ordinary household implements and utensils." (*Ibid.*, p. 36). And elsewhere: 'Bronze was used in preference to copper for the manufacture of weapons and implements requiring an extra sharp cutting-edge and for ornaments, figurines and other such articles in which a specially fine finish was desired." (*Ibid.*, p. 30; also cf. pp. 34-35).

15. Ind. Ant., XXXIV (1905), 240f. Even the Mohenjo-daro bronze contained about 4.5 to 13 per cent tin, according to an early examination of a number of finds, which is given in Marshall, Vol. II, p. 481

16. Mackay, FEM, Vol. I, p. 441. Elsewhere, the same authority states: "Bronze was however almost as common as copper in the lowest levels of Mohenjo-daro, and there is every reason to believe that at Chanhudaro the same proportion will hold good" (Mackay, CE: 1935-36, p. 174).

objects found here shows that at the time of the earliest strata, so far unearthed at Mohenjo-daro, the Bronze Age had definitely started, or was even firmly established. Nonetheless, the exact percentage in the alloy might have been in all probability accidental, rather than deliberately conceived or contrived. After a careful examination of a number of objects unearthed at Mohenjo-daro and other Indus Valley sites, Dr. Desch and Mr. Carey have come to the conclusion that the proportion of tin in the bronze objects varies from a mere trace to as much as 26.9 per cent.¹⁷ Dr. Mackay has pointed out that as in India, so in contemporary Sumer, bronze was known widely, having come in vogue there as early as 3000 B.C.¹⁸ Is it not preposterous, then, to continue to call this civilization of Harrappa and Mohenjo-daro "chalcolithic", when it appears to fall wholly in the Bronze Age, when we can even witness the growing popularity of the bronze implements and their steady ousting of those of copper, in the later layers as contrasted with the earlier ones, where copper is much more dominant than bronze?

Sources of Copper

The nearest copper deposits in the West were probably those found in the mountainous tracts of Afghanistan, Baluchistan and Persia, where—in all these countries—copper ore is abundant even now. On the East, the nearest deposits lay at a much greater distance—in the erstwhile states of central and eastern Rajputana—so that it may be legitimate to assume that the copper ore utilized by the authors of the Indus civilization to fashion their implements, came mainly not from that direction but rather from the opposite. But Dr. Desch has pointed out the presence of an appreciable amount of nickel in the bronze and copper objects found in both

¹⁷ The archaeological chemist, Muhammad Sana Ullah, after examining six specimens of bronze, found at Mohenjo-daro, and numbered by him as Nos. 8 to 13, reported: "Specimens Nos. 6 to 11 represent the various qualities of bronze in use. The percentage of tin is 4.51, in No. 8; 8.22 in No. 9; but in the last four varies between 11.9 and 13.21. It is obvious that 11-13 per cent tin alloy was popular and had come into general use, during the period under review, although lower grades were also employed to some extent." (Marshall, II, p. 485). Also cf. Mackay, *Chanhudaro Excavations*, p. 174: "Alloys from Mohenjo-daro have been found to contain as much as 26.9 per cent tin, and, when 31 fragments of bronze from that site yielding 2 per cent and upward of the metal were examined, the average proportion of tin to copper was found to be as high as 11.91 per cent." This would show that tin was mixed as the eighth part (*ashfama bhaga*) of the alloy.

¹⁸ Mackay, EIC (1948, London), p. 7.

the Indus Valley and Sumer. Mr. Peake, therefore, tried to locate the source of Sumerian copper at Oman, which yields similar copper ore. The ancient towns and cities of the Indus valley are also supposed to have received their ore from the same locality, for the same reason. Further light is still wanting as to the presence of nickel in the countries of Afghanistan, Baluchistan, Persia etc.; but we are told that the presence of nickel has "also been detected in the copper from the old, but still worked, mines of Chhota Nagpur in India."¹⁹ Finally, whatever the original source of the ore, it is certain that the smelting thereof often took place in the Indus Valley sites like Mohenjo-daro, Chanhudaro etc. We learn that a quantity of ore and a number of ingots were unearthed in Mohenjodaro.²⁰ At Chanhudaro, too, which must have been a great centre of copper-smiths, a mass of very clean bronze castings was exhumed. Thus, it would appear that excepting the miner, who unearthed the ore, all others that were connected with the fashioning of tools and weapons, e.g., the primitive metallurgist, who purified the ore and cast it into ingots, the smith, who fashioned the implements etc., preferred to live in the towns of the riparian plains, rather than in the hilly mining area.²¹

The Period and Chief Known "Cultures" of the Indus Civilization

The typical "Indus Civilization", better known to the professional archaeologists as the "Harappa Culture", is already a stereotyped Indian culture, as is indicated by the representations of the elephant and the humped bull (*Bos indicus*), as well as by numerous other factors. But this culture was a part and parcel of a wider civilization, the extent and continuance of which it is very difficult to determine, because of the complexity of the problems, connected with it. This wider civilization comprises the following types, known to archaeologists as "cultures", that are marked by different types of pottery, and that signify different chronological eras, and, at times, different geographical areas, wherein they prevailed:

19. Mackay, IC., p. 122. Dr. B. B. Lal, the present archaeological chemist in India, speaking with reference to a two-pronged copper weapon (?=Naracha), found at Bisauli (Badaun District, U.P.), which contains 0.66 per cent nickel states: "The Indian copper ores have generally arsenic or nickel or both as impurities." (*Ancient India*, No. 7, p. 25).

20. Dikshit, PCIV, p. 52.

21. Contra Mackay, CE., p. 175.

- (1) Amri Culture, with sub-types; Kulli-Mehi Culture and Zhob Culture;
- (2) Harappa Culture, divided into sub-types, and contemporaneous with
 - (3) Nal-Nundara Culture;
 - (4) Jhukar-Lohunjo-daro Culture; and finally,
 - (5) Jhangar Culture.

The sequence of these "Cultures" is determined mainly by the efforts of Mr. N. G. Majumdar, Dr. Mackay, Sir Aurel Stein etc., who have also shown its connections with the cultures of Mesopotamia and Persia, on the basis of pottery-types, etc. Dr. Frankfort, Prof. V. Gordon Childe, Col. Stuart Piggot²² and others have added a number of interesting and exact parallels to the study of this sequence, which we find evolving in a number of localities in the West almost simultaneously with the Indus Valley.

Culture-Contact Betrayed by Pottery of Different "Cultures"

It is none of our purpose here to deal at length with the similarity, shown by the pottery of these various "cultures", and that of the various sites like Tell Halaf, al'Ubaid, Erech or Warka (Uruk), Jamdet Nasr and others, or that of the periods (or cultures) named after such sites. But one must not forget that it is the pottery that most graphically illustrates the cultural contact between the valley of the Indus and that of the Euphrates. Therefore, we may only indicate briefly the nature of such similarity as is manifest in the pottery of various Indus Valley cultures mentioned above:

(1) The typical Anri pottery is a thin-walled ware of buff or reddish clay, with a plain, reddish-brown band at the neck and a chocolate band on the inside of the lip, which is in many respects similar to that of Tell Halaf, Arpachiyah, Samarra and other sites of the Halafian period. The Amri ware is decorated with geometric patterns in black or chocolate on pink or cream-coloured surface, and it is found at Amri, Lohri, Pandi Wahi, Damb Buthi and other sites.²³ "Among the abundant painted pottery,. . . frequent use made of such animal motifs, as rows of horned mountain sheep, is a striking feature."²⁴ Some motifs betray a close similarity with

²² *Ancient India*, No. 3, p. 131f. and Dr. M. G. Dikshit's article on Rangpur ware. For various types of the Indus Valley pottery, see plates IV and V. For the important modifications, suggested by Lt.-Col. Piggot see below, pp. 272f.

²³ Majumdar, pp. 25f., 147f., 150f., etc. See plate IV, No. 1.

²⁴ Stein, II B, p. 193.

the ware found at Musyan (W. Persia), Shahr-i-sokhta (Sistan) and even al'Ubaid.²⁵ Dr. V. Gordon Childe appears to be inclined to put the date even later, when he remarks: "And two colours are normally employed—a warm, often purplish black and a deep plum red often identical in tint with that preferred at Jamdet Nasr in Akkad.... On the other hand, in technique, in the use of polychromy and in several of its motives, Amri ware approximates to that encountered at Jamdet Nasr...."²⁶ The culture of the sites, Kulli, Mehi and others, explored by Sir Aurel Stein,²⁷ belongs, according to the available ceramic evidence, to almost the same category as the Amri Culture. Similarity in pottery designs and pottery types enables one to connect the ceramic culture of such sites of the Zhob valley, as Periano-Ghundai, Moghul-Ghundai etc., with the Amri pottery. Mr. N. G. Majumdar characterizes the Amri pottery as a "bichrome" ware—although due to the method of colouring, it appears to have in effect more than two colours—in order to distinguish it from the real "polychrome" ware of Nal, Nundara etc.

(2) The typical Harappa Culture, which succeeded the Amri-Kulli-Mehi Culture in the Indus Valley, is found to be superimposed over the latter in a number of localities including Amri etc. It is marked by a thick-walled, red ware of bright terracotta colour, with decorations painted in black on a polished, dark red slip. Prof. V. Gordon Childe compares its fabric to that of the Uruk ware of Mesopotamian sites. We find in the Harappa ware plant and animal motifs gradually supplanting the geometric patterns, with which they are found in combination or otherwise during this period. This Harappa ware is found among other sites, at Harappa, Mohenjo-daro, Ali Murad, in the upper layers at Amri and other sites, the lower layers at Chanhudaro, Ghazi Shah and other sites (as far as they have been unearthed), "Suktendor" (correctly Sutkagen-dor), Karchat etc.²⁸ Quite a number of the cities of this period, as well as others of the late proto-historical and early historical epochs, that were situated on the banks of the Indus in their own days, are now removed from her by a measurable distance—thereby illustrating the changes in her ancient course. To the former of these two groups of cities belongs Chanhudaro, just as to the latter belongs the city of al-Mansura or Brahmanabad, that was already pronounced in the days of Biladhura as a city of

25. Majumdar, p. 27f.

26. Childe, NLMAE, p. 226.

27. Marshall, I, p. 98f.

28. Majumdar, p. 25f.; 149f., etc.

antiquity.²⁹ For the future explorers, these cities along the old bed of the Indus, that can still be marked out in many places in Sind, may be said to hold a substantial promise.

A few general characteristics of the pottery of Harappa Culture could be summarized in the following words of Sir John Marshall: "Most of the Indus pottery was wheel-made, well fired and plain, but painted ware was by no means uncommon. As a rule, the designs were executed in black on a dark red slip and consisted ordinarily of foliate and geometrical devices, among which the 'interlocking circle', 'vase', 'bangle', 'comb' and 'scale' motifs...are the most striking. Animal motifs are very rare, and the few pieces on which they do occur were probably imports from Baluchistan."³⁰ Among the commonest motifs, we may include geometrical and allied ones such as intersecting circles, chessboard patterns, triangle motifs, double-axe motifs, comb motifs etc. Among the zoomorphic designs may be included those of the fish the snake, the deer, the ibex, the peacock, the cock etc. Ibex is a common motif on the earliest pottery of Iran and Baluchistan, whereas it is rather rare in the pottery of Harappa Culture. Further, this animal is found on the hills of Iran, Baluchistan and Western Sind, and it is never found in regions to the east of the Indus. This leaves little doubt that the authors of the Harappa Culture borrowed a number of cultural elements from their Western neighbours, even when they settled in the plains of the Indus.

No detailed study of the pottery of the Harappa Culture is intended here; yet we may note here a few interesting aspects thereof, so as to bring out the commercial and cultural connections of the authors of the Harappa Culture with the ancient civilized world. Some aspects, like the use of the brilliant red slip, which is found on the pottery of Mohenjo-daro, and which is so common in a number of countries in the ancient civilized world, may just serve to emphasize in a general way³¹ (despite the opinion of Dr. Mackay) trade connections of the ancient world of the "Copper and Bronze Age".³² But there are other aspects that would speak with

29. S. N. Majumdar's ed. of Cunningham's *Ancient Geography of India* (1924) p. 601.

30. Marshall, Vol. I, pp. 37-38.

31. Compare the opinion expressed by the late Rao Bahadur K. N. Dikshit, in his PCIV, p. 50f.: "A vast majority of the vessels consist of well burnt vessels to which red slip made from ochre has been applied, which must have been brought then, as at the present day, from the island of Ormuz. The surface finish in most cases is very fine." But it may be remembered that ochre is common in the Vindhya etc. in India. See above, pp. 155-56.

32. Mackay, FEM, I, p. 180.

a greater certainty, if studied with a critical care. We shall select only a few of such aspects at random, that would just suffice to bring out these connections rather than "prove" them with a learned elaboration.

It may be, in general, said that the patterns on the pottery of Mohenjo-daro and Harappa "are not nearly so interesting as those of the vases of Sumer and Elam".³³ Some of them, e.g., the Sun-motif and the comb-motif, are common to the Tell Halaf strata in Mesopotamia and the Indus Culture sites. The bird-motif is rare in the valleys of both the Indus and the Euphrates, though one finds it quite popular in Egypt and Elam. On the other hand, the plant-motif is more popular at Mohenjo-daro etc. than in the Mesopotamian sites. In Mesopotamia and elsewhere in the West, the geometric designs appear to have been supplanted by those from the animal world about the beginning of the Copper Age. In the Indus Valley, the former appear to have yielded place to the latter only gradually, at a time when the Bronze Age appears to have become already stabilized; and the latter, in comparison with the former, are less popular. One possible way of interpreting this fact is that the new type of ornamentation on pottery became popular in the Indus Valley only gradually through commercial channels, i.e., that after it had attained a great popularity in the Euphrates Valley, it was either exported to, or was copied in, the Indus Valley. Whatever that be, scholars have noted that the Indus Valley people had specialized in some other decorations, that were not so popular elsewhere: "Perhaps on no ancient pottery do plant and tree motifs appear so frequently as at Mohenjo-daro. They are always to be found associated with the representations of animals."³⁴ By these motifs, they may have contributed to other peoples' styles, embellishing and enriching them.

The general resemblance between various peculiar shapes and patterns of pottery, of the Indus civilization and of the Mesopotamian and other Western cultures, has been noticed long ago by a number of scholars. For instance, Prof. V. Gordon Childe observed long ago: "The Indus and Sumerian beakers have an unmistakable family likeness."³⁵ Such things betray a commercial and cultural exchange, which must have been both ways; and if, at times one country borrowed from the other, that, too, appears to be indicated, *inter alia*, by the evidence of pottery, as by seals and other things. "Frankfort has found at Tell Asmar fragments of pottery,

33. Mackay, FEM, I, p. 215.

34. Ibid., p. 220.

35. Childe, MAE, p. 211

whose surface was ornamented with knobs of clay, a type that has not yet been discovered at any other site in Mesopotamia and which is certainly foreign to that country. This knobbed ware also occurs at Mohenjo-daro and is certainly the work of a local potter; one of the vessels unearthed is a small replica of a type of storage jar in general use in the city. There is, therefore, strong reason to believe that the Tell Asmar specimens were imported from India."³⁶ In some similar cases, the evidence that is available at present is not altogether decisive. Thus, the "intersecting circle patterns" so common in the "Harappa Culture" sites, are rare in Mesopotamia and other early civilized nations of the West. They are, however, found in levels that are supposed to date much earlier than the period, assignable to those so far exhumed in the "Harappa Culture" sites. It is quite possible even in this case that this device was also borrowed from the Indus Valley where it was originally developed, and where, therefore, it continued to be popular, and that it disappeared in the countries, where the pottery, containing it, was imported; but with the available evidence, this may not be regarded as certain.

An opposite conclusion also can be drawn from the evidence of some other vessels. Speaking of the "Reserved Slip Ware", Dr. Ernest Mackay observes: "At Mohenjo-daro several pottery sherds were found, which could be compared with certain wares from Kish and Ur in the treatment of their slips....The great rarity of this reserved slip ware suggests that it was imported from other countries. Sir Leonard Woolley has stated that some specimens found by him in the lowest levels at Ur may have come from Anatolia."³⁷ Some kidney-shaped motifs, that are frequently found in Sumer and Elam, are rare in the Harappa pottery.³⁸

In fields other than pottery also we obtained undeniable evidence of cultural and commercial contact. As Prof. Childe points out, the "cylindrical vase of silver from Mohenjo-daro invites comparison with the alabaster vessels of the same shape from Ur and Susa."³⁹ But if the evidence in this case is not decisive as to who borrowed from the other, it is so in a number of other instances: "Another interesting piece of evidence is a fragment of a vessel of light-green steatite from an early level at Mohenjo-daro. This has carved on it an unusual mat-pattern, which occurs on Sumerian vessels unearthed at Tell Asmar, Kish and further east, at Susa in

36. Mackay, EIC, p. 47, cf. Dikshit PCIV, p. 52.

37. Mackay, CE, p. 72. Also cf. Mackay, IFFM, I, p. 45, 184f., 652.

38. Ibid., I, p. 224.

39. Childe, MME, p. 211.

Persia, and as the stone and its colour also correspond, it seems certain that the Indian specimen is an importation from either Sumer or Elam."⁴⁰ Also the evidence of certain decorated or etched beads, that are rare in the Indus Valley and common in Sumer, or of certain models of theriomorphic vases, that are similarly rare in the Indus Valley but quite common in Sumer, Elam, Egypt, Anatolia and other countries of the West, may be taken to prove commercial intercourse and also the influence of the ancient civilizations of the West on the Indus civilization."⁴¹

There is a certain difference that is perceptible to a discerning eye between the designs found on the domestic pottery of the Indus Valley people (especially those of the Harappa Culture) and those found on the funerary pottery of the same. Most of the domestic vessels were no doubt, kept alongside the remains of the dead; but on the whole, the funerary pottery was much more decorated than that meant merely for domestic usage. The motifs found on the former had often a sacred significance, that may not be always easily intelligible now, but that was certainly connected with the primitive cults of such funerary divinities as Mahakala and Kali, or rather their more primitive equivalents.

(3) The pottery, found at Nal, Nundara, and other localities, is mostly "pale or dark buff, straw-coloured or of greenish hue, with designs applied in brown or sepia or black and filled in *after firing* with blue, green, red yellow, or white, certain of its linear decoration showing a marked resemblance to that of the Susa I pottery. When first discovered, this Nal ware was thought to be exclusively a funerary ware, because of its archaic patterns, but more especially because its evanescent colours and unusually delicate fabric were ill-suited to ordinary domestic usage."⁴² But subsequent researches have shown it to be both household and funerary ware. The geometric patterns found on it are akin to those of the pale ware of Sistan etc., and "some of the patterns at any rate

40. Mackay, F.I.C., p. 148. Cf. Mackay, F.E.M., I, p. 321f.. "This fragment....is of especial interest, because the design upon it is exactly the same as that upon one part of the double vessel found at Susa.....which is dated to c. 2,800 B.C. Mr. Henry Field now reports that similar fragments with the same pattern have lately been unearthed at Kish, where also they are dated.....to c. 2,800 B.C. The fragment from Mohenjo-daro.....was found in a very early stratum." (See also *ibid.*, p. 639). This would prove that the Indus civilization owed its inspiration in its earlier days at least partly to Mesopotamia. It may further be remembered that the views, giving the absolute dates mentioned here, have to be modified in the light of more recent researches alluded to in succeeding pages.

41. Mackay, F.E.M., I, p. 640.

42. Marshall, I, pp. 99-100. See plate IV, No. 2.

appearing on the Kulli-Mehi ware, e.g., the bulls, fishes and the *Pipal* leaf representations, have become more stylized at Nal.”⁴³ “That this (Nal-Nundara) ware is later than the ceramic prevalent at the chief chalcolithic sites of Baluchistan and Makran appears to be proved by stratigraphic evidence”, which Sir Aurel Stein’s “excavation at the Shah-i-tump mound in Kej has disclosed.”⁴⁴ There are also other indications, which prove the priority of the Amri-Kulli-Mehi ware to the Nal-Nundara ware; but “the available evidence is not enough to determine the relative chronological position of Nal and Mohenjo-daro.”⁴⁵ While it is possible that the Nal-Nundara pottery is chronologically somewhat anterior to the pottery of Mohenjo-daro and Harappa, definite evidence is still lacking; and it is equally possible that the Nal ware and the Harappa ware are contemporaneous, and that they belonged to different geographical areas.

(4) The Jhukar ware illustrates a degenerate continuance of the black-on-red technique together with the reappearance of the “bichrome style” in a new form. The motifs include “sloping ovals”, “balls in compartments”, “the spirals” etc. This typical ware is found in the upper strata at Jhukar, Lohunjo-daro etc., and the “style can be further studied at the lake-site of Trihni, in its characteristic schematized rosettes.”⁴⁶

(5) The Jhangar pottery, which appears to have superseded at different places some of the afore-mentioned wares, including the typical Harappa and Jhukar wares, undoubtedly inherits certain aspects of the older painted wares; but it presents on the whole a distinctly new technique of manufacture and treatment. Mr. N. G. Majumdar notes in connection with this pottery the following: “The incised black pottery (found at Jhangar) has many points of resemblance with that recently discovered at Huttanhalli near Bangalore in the Madras Presidency, which dates from the Early Iron Age. The characteristic type of the black pottery of Jhangar was the ‘bell-beaker’, like that of the Danubian civilization of Europe.”⁴⁷

43. Majumdar, pp. 150-151.

44. Stein, II B, p. 189.

45. Majumdar, p. 151. Mr. Hargreaves excavated at Nal (Baluchistan) about 270 funerary urns, even after Col. Jacobs had rifled the same cemetery of an equal or greater number of such urns. Although “complete” burial is not unknown here, “fractional” burial seems to have been in greater vogue.

46. Majumdar, p. 154.

47. Ibid., p. 154. For the elaboration and details of these points, vide ibid., pp. 68-70. Cf. Mackay, CE, p. 189 for the find of an iron arrow-head of the Jhangar period, found at Jhukar. The connection of the Danubian culture with the “Aryans” is indicated in some subsequent chapters, and is most important for the solution of the problem of the invasion of the “Aryans”.

In the fore-going account of the sequence of pottery of the "Copper and Bronze Age in India", be it noticed, we have mainly followed the authority of the late Mr. N. G. Majumdar, whose pioneer efforts in this subject do not appear in the least to have been rendered obsolete by the works of his successors in that field even to this day. In a number of cases, however, these successors have added to the evidence at our disposal and in some cases, modified his description, classification and conclusions.

Recent Modifications in Chronological Scheme

Lt.-Col. Stuart Piggot, who was aided by Mr. Krishna Deva, seeks to modify in his recent work *Prehistoric India* the above-given scheme radically, mainly in the following respects:

(1) The Quetta Culture, characterized by a buff-ware with only geometric designs, painted in a monochrome of purplish-brown (with shades ranging from pinkish-white to greenish), represents, according to this scholar, a pre-Amri culture phase, when houses of mud-brick were in vogue. He is apparently disposed to equate this with the al'Ubaid culture, which, we have seen belongs to the late Copper Age, but he has not cited any evidence so far, about the familiarity of the authors of this culture with copper implements.

(2) The Amri Culture and the Nal-Nundara Culture represent, according to this scholar, "two extremes of variation" (*Prehistoric India*, p. 75), in an allied group of pottery. Of these, the Amri Culture represents the earlier phase, the Nundara Culture the middle phase and the Nal Culture the latest phase. Elsewhere, however, he observes: "Although we have described a stylistic sequence, the relationship between the Amri, Nundara, and Nal styles of pot painting, it is not possible to say that these stages actually followed one another in time." (Ibid., p. 89). He also remarks that "the vast majority of all vessels of Nal and of Amri ware have a distinctively very fine soft buff or pinkish paste, which may sometimes approach an off-white and occasionally have a green tinge. On this, a white slip is frequently applied as a background for painted ornament....The excellence and homogeneity of the paste in all the vessels (of Nal) are shown by the extremely thin walls often obtained."

The pots are normally wheel-turned. (Ibid., p. 84). As to the decorative motifs on these pots, he notes that (A) some are peculiar to Amri, (B) some are common to Amri and Nundara, (C) some are common to Nundara and Nal, and (D) still some others are

peculiar to Nal. At Nal, a couple of hoards of copper implements, that included axes, chisels, a spear-head or an arrow-head, a saw etc., were found. This would show that the Nal Culture belongs, on the whole, to the advanced Copper Age or early Bronze Age and is thus anterior to the full-fledged Bronze Age type of the Harappa Culture, and is not contemporaneous with the latter, as the evidence, brought forth by Mr. N. G. Majumdar alone would probably lead us to conclude. This is also in general conformity with the fact, brought to our notice by Mr. Majumdar and others, that the Amri Culture is overlaid by the Harappa Culture in a number of places. There are numerous other factors like the use of mud-bricks instead of burnt bricks, which show that Nal Culture was earlier than Harappa Culture; while there are also other factors like the use of faience for bead-making, the use of cylinder-seals, the use of designs like *pipal*-leaf and intersecting circles etc., which bring the Nal and Harappa Cultures together. Despite all the evidence cited by him, Lt.-Col. Stuart Piggot is apparently unable to make up his mind as to the priority of the Nal Culture to the Harappa Culture, though he does not hesitate to compare the former with the Early Dynastic epoch of Mesopotamia, when the Bronze Age culture was fully developed.

(3) Lt.-Col. Piggot looks upon the Kulli-Mehi Culture as contemporaneous with the Nal-Nundara phase rather than the Amri phase of the Amri-Nal-Nundara Culture. (*Ibid.*, p. 96). Elsewhere he opines that "Kulli and Harappa were by and large flourishing side by side." (*Ibid.*, p. 115). By the bye, compare these statements with Sir John's views given above that the representations on Nal-Nundara pottery are more stylized, and therefore later, than those on the Kulli-Mehi pottery. These contradictions, in Lt.-Col. Piggot's statements, are not at all relieved when the same author describes at two different places, one and the same object, found in the cemetery at Mehi, as being made differently, i.e., of copper (*ibid.*, p. 111) and of bronze (*ibid.*, p. 112). This object is a curious metal mirror, possessing a handle in the shape of a female figure. Both Mr. Majumdar and Lt.-Col. Piggot appear to look upon this Kulli-Mehi Culture as consisting of two phases, the earlier found at both Kulli and Mehi, the latter only at Mehi. It is not clear which of the two phases, the copper and bronze objects, said to have been found in the cemetery at Mehi, have to be referred to. But copper pins have been found at both the sites. Thus the available evidence probably allows us to place this Culture in the Copper Age or the beginning of the Bronze Age. Lt.-Col. Piggot is, however, disposed to correlate it with the Eariv

Dynastic Culture of Mesopotamia, dating it to c. 2800 B.C. (*Ibid.*, p. 116). About the Zhob Culture site of Rana Ghundai also, Lt.-Col. Piggot appears to us to make a similar statement when he refers Rana Ghundai III to the Early Dynastic times in Mesopotamia at the earliest (*ibid.*, p. 130), though he concedes that no object of copper or any other metal is to be found in any earlier layer (viz. Rana Ghundai I or II) (*ibid.*, p. 128); he elsewhere takes Harappa Culture as a development of Rana Ghundai III. (*Ibid.*, p. 192).

Incidentally we shall note a fact, which needs further detailed study to deduce correct historical conclusions, but which, none the less, appears to present a fresh argument for a certain school of mythologists and historians: This fact is that at Kulli we come across baked clay figurines of the Mother Goddess in her "Bird" (*Vinata*) aspect, while at Rana Ghundai and other sites of the Zhob Culture, we meet similar figurines of the Mother Goddess in her "Serpent" (*Kadru*) aspect. (See *Prehistoric India*, p. 108, fig. 9, and p. 127, fig. 16). In *The Mother Goddess* and elsewhere, we have referred to different tribes and peoples worshipping such different forms of the same divinity, to the mythological stories of conflicts between *Vinata* and *Kadru*, between the off-spring or descendants of these two divinities—stories, that gave birth later on to supposedly historical conflicts of the Pandavas and the Kauravas. This new piece of archaeological evidence might well be borne in mind in the study of such conflicts—a full elucidation of which must take into account even, perhaps, the fights between the worshippers of the different forms of the Great Goddess. The intermingling of these two "varieties" of the primitive population of these regions or of two Cultures appears to have been apparently signified by the Harappa Culture, where as is well-known, both the types of the figurines of the Mother Goddess are to be found. (*Ibid.*, pl. VIII).

(4) Both Dr. E. Mortimer Wheeler and Lt.-Col. Stuart Piggot are disposed to believe that the authors of the Jhukar Culture, whose vestiges are to be witnessed in the cemetery of Shah-i-tump, are to be identified with the Aryans (*Ancient India*, No. III, p. 82; *Prehistoric India*, p. 220f.), in which suggestion they evidently follow Dr. Mackay and others. These scholars, however, point out that the vestiges of this Culture are comparable with the relics of Hissar IIb and III, Anau III, Susa etc., where copper seals, spears and axes of copper and bronze etc., are to be found, similar to those found here. Neither of these cultures was conversant with the use of iron.

Identification of the "Aryans"

An important problem, tackled by some of these scholars, including in the first instance Dr. Ernest Mackay, relates to the annihilating conquest of the Indus Valley by the so-called "Aryans", for which archaeological evidence is naturally sought for in the field of pottery. Such evidence can, indeed, be decisive under certain conditions; but, to our dismay, those conditions have yet remained unfulfilled, or, at any rate, not thoroughly explored. For want of adequate facilities, we ourselves are unable at the present moment to deal with this subject, except in the way of calling the attention of the reader to two tentative conclusions, one drawn by Dr. Mackay, and the other, by ourselves. In the present state of our knowledge, both these theories have their drawbacks, and both appear to us to be almost equally plausible.

Dr. Mackay would identify the "Aryans" with the authors of the Jhukar ware, whereas in our view (based on the archaeological data given by Mr. N. G. Majumdar), they are to be identified with the authors of the Jhangar ware. If the Jhukar ware continued, as Mr. N. G. Majumdar observes it did, the general style of the painted ware of the Harappa Culture, the authors of the former may not be identified with the "Aryans", who appear to have almost totally changed the whole face of the culture they met in the Indus Valley and the Punjab. We have shown in later pages that the "Aryans" initiated the Iron Age civilization into different parts of the ancient world, dominated by the despots of the Bronze Age. The evidence at our disposal gives us no indication as to whether the authors of the Jhukar Culture at all knew the use of that metal. On the other hand, there appears to be sufficient evidence to prove that the authors of the Jhangar Culture were aware of it, as will be clear from the quotation from Mr. Majumdar given above. The same quotation will also make it clear that in the field of pottery we can trace certain affinities of the "Indo-Aryans" to their counterparts in Europe. (See in this connection the last chapter).

Dr. Mackay, however, holds that "the differences between these two (viz Harappa and Jhukar) wares considerably outweigh the resemblances for, as already stated, there is a marked dissimilarity, between the fabric, the style of decoration and most of the motifs and patterns used. Yet it appears possible that a certain amount of borrowing did take place."⁴⁸ In his *Early Indian Civ-*

⁴⁸ Mackay, C.I., p. 127f. He then proceeds to give some examples of similarity. That Dr. Mackay is not altogether sure of his own opinion about the authors of the Jhukar Culture vis-a-vis the Harappa people will be noticed from his remarks about these two in his *Chanhudaro Excavations*, p. 102.

lization, he states: "There is an astonishing cleavage, however, between the cultural make-up of the successive peoples, Harappa and Jhukar, most striking, perhaps, in their pottery wares and seals. Indeed, there is a curious feeling of distant kinship between the Jhukar seals of Chanhudaro, with their lack of any written characters and their shapes—either button-seals or stamp-seals with handles—and the seals of Cappadocia of a somewhat earlier date. The possibility of the Jhukar people being forerunners of the Aryan invaders has to be considered."⁴⁹ Elsewhere in the same work, his daughter clarifies some points in relation to the chronology of the Indus civilization *vis-a-vis* the invasion of the "Aryans": "In 1940, in his *Alalakh and Chronology*, Professor Sidney Smith, after a further study of the Venus cycle sought to bring down the date of the accession of Khammurabi, a key point in Mesopotamian history, to shortly after 1800 B.C. This in its turn meant bringing down the dating of the end of the First Dynasty of Babylon and the abandonment of the ancient Indian cities, to some time towards the end of the seventeenth century B.C. More recently, however, Albright, on evidence of the King List found at Khorsabad by the Iraq Expedition of the Oriental Institute, Chicago, and published by Poebel, would date the accession of the great Babylonian monarch to shortly before 1700 B.C.—a shift of date that would bring the end of the Harappa cities to well into the sixteenth century B.C. This latter dating would, it might be pointed out, bring the Jhukar Culture, which succeeded that of Harappa and Mohenjo-daro, into close proximity in time to the coming of the Aryan-speaking peoples to North-West India."⁵⁰

Before leaving this question about the identification of the "Aryans" with the authors of either of the post-Harappa Cultures, mentioned above, we shall note a well-known fact that with the passing away of the Harappa Culture also passed away the pictographic letters, that are mostly known from the seals characteristic of this culture. Until the days of the Mauryas, the "Aryans" in India appear to have almost studiously refused to leave any documentary vestiges of a lasting or even a semi-lasting character. In the post-Harappa period, this dearth of documentary vestiges becomes noticeable for the first time in the days of the Jhukar Culture. This fact can be explained as a coincidence; but, be it admitted, it furnishes us with an important argument in support of Dr.

49 Mackay, EIC, pp. 4-5.

50 Ibid., pp. 156-157

Mackay's theory about the identification of the authors of the Jhukar Culture with the "Indo-Aryans". Anybody, who is aware of the great precision in pronunciation and intonation in Vedic Sanskrit, and who has seen the hundreds of "characters" on the Indus seals, will agree that these "characters" appear to be totally inadequate to give the exact pronunciation of the words and syllables of the Vedic tongue. This would supply us with the reason as to why the script of the Indus seals was discarded by their successors, if the latter were identical with the "Aryans". A new script, that was in conformity with the genius of the tongue and that was akin on the one hand to that used by the original "Aryans" in their homeland before they began migrating, and on the other to the Brahmi script, found in the earliest decipherable inscriptions in India, must have come into vogue. It is only with such a prototype of the Brahmi script that the different syllables in the Vedic Sanskrit could at all be written adequately. It is, however, a question as to when the use of such a script did first take place in India, whether at the beginning of the Jhukar period, or at that of the Jhangar period. Nor is it an isolated question, but one which is to be studied along with other problems, such as the use of iron, etc. Some aspects of the Jhukar Culture present analogies with Hissar III and some post-Sargonic cultures, and all these belong to the Bronze Age. Further, Dr. Mackay's idea of a radical differentiation between the pottery of Harappa and other earlier Cultures and the Jhukar Culture does not seem to be borne out by the conclusions drawn by Lt.-Col. Piggot: "In general, then, the Jhukar pottery from the Sind sites seems to combine a variety of elements, in which Kulli and probably Harappa motifs predominate, with an underlying Amri strain." (*Prehistoric India*, p. 223). There is no indication in the Jhukar and Hissar III cultures either of the popularity of the horses or of the chariotry, which, as shown in a subsequent chapter, were special characteristics of the so-called "Aryans" or "Indo-Europeans".

Town-planning and Defence-arrangements of the City-State

We have spoken above of the cultural and commercial contact, and even the measure of likeness that is observable between the Copper and Bronze Age cultures of the Indus Valley and similar cultures that prevailed in Mesopotamia and other regions of the West. But despite this contact and the general likeness, we must remember that it is with the "Copper and Bronze Age" that we find for the first time real cultural differences cropping up in dif-

ferent countries. Each of these different cultures is rooted in its own soil, so that each of them presents some peculiar interesting features. Thus, looking at these cities of the Indian Bronze Age, one could at once recognize a number of interesting features, that mark out the Indus civilization as being in a class by itself—not to be compared with the contemporary cultures of the West. In comparison with the puny hamlets of the West, here we find magnificent cities. But speaking from the point of view of a modern man, it is not altogether the grandeur and magnificence of the cities of the Indus Valley by which we are charmed or attracted, but rather the neatness that is manifest in the town-planning, and the tidiness that is visible in the sanitary measures of these cities. In these respects, the Indus Valley people reveal a marked advance over their contemporaries, by such arrangements as the regular lay-out of streets, the sewage system, the use of well-burnt bricks, the excellent brick-lined wells, the provision of a good bathroom in almost each and every house, and, above all, the good size of an average house.

The last of these reveals a prosperous community of "middle class" people, that, from all evidence, appears to have comprised mainly the traders, priests, scribes, officials, warriors etc., besides, perhaps, master-artisans and the like. Undoubtedly, Mohenjo-daro, Chanhudaro and other cities along the ancient Indus, and also Harappa and other cities along her tributaries, were great commercial marts, which carried on trade with distant countries in numerous wares, artifacts and products. They were real cities, the like of which could not have been imagined in any neolithic society. And even in the contemporary Bronze Age world, they were certainly among the largest. The business of the farmer, considerably aided by the implements of copper and bronze, and, above all, by the metal-tipped wooden plough carried by the draft-animal, enabled the accumulation of considerable surplus (formerly unheard-of) in the hands of the landlords of the Indus Valley. And they shared this surplus—either converted in money or otherwise—with the traders, who brought a quantity of wares and other articles from afar.

This accumulation of agricultural surplus and of other type of wealth must have undoubtedly necessitated the undertaking of defensive measures and the building up of armaments by the leaders of these localities. Undoubtedly their economy had enabled them to become powerful enough to purchase sufficient weapons (or to make them) and to be able to protect themselves, so that (to quote Dr. Mackay) "no evidence exists, as in Sumer, of the

cities being repeatedly sacked and burnt".⁵¹ But this latter fact is no sufficient ground to assume with Dr. Mackay that the "inhabitants of Mohenjo-daro and Harappa seem to have led more or less peaceful lives, instead of continually fighting for their existence."⁵² Though this last sentence is carefully worded, so that as it stands, there is little to wrangle about it, the suggestion is that the people of the Indus Valley were "entirely non-militant, at peace with all the world, and, therefore, not fortified"⁵³ adequately. At any rate, this was the opinion, that was prevalent in many quarters; and this opinion made them a rich, commercial people, who did not think of defending their wealth from pillage and plunder in a comparatively poorer world that surrounded them, by means of adequate fortification or by weapons! If there was no evidence of pillage and arson, this should not have suggested a mere "peaceful living", but rather full provision of adequate military protection. And, if there was no fighting inside these towns, there is nothing to warrant that there was none in the fields outside them, or in other people's lands. And even if the Indus Valley people had been peaceful, there is nothing to suggest that their neighbours were equally so; indeed, whatever evidence there is, points to an opposite temperament of these neighbours. And with bellicose neighbours, no country can afford the luxury of remaining defenceless.

Decline of the Indus Culture and Foreign Invasion

But while we may thus controvert the views originally held by Dr. Mackay, we must not fail to note the following supplementary observations made by him in the same work: "A chain of small mounds immediately north of the stupa mound at Mohenjo-daro reveals traces of an exceptionally thick wall and what appears to be a gateway.... It now seems certain that Mohenjo-daro was attacked by enemies during one period at least of its *later history*".⁵⁴ If this last observation is correct, it is quite in keeping with decadence of the Indus Valley civilization during its later history. If in the early Bronze Age of the Indus Valley the new equipment of the peasant enabled him to produce for the society a good deal of additional surplus, and also enabled quite a large section of the "town-

51. Mackay, IC, p. 141f

52. Ibid.

53. Mackay, EIC, Preface (by Dorothy Mackay), p. xii. Cf. Ibid., p. 12, where the original runs as: "The inhabitants of Mohenjo-daro and Harappa have been assumed to have lived in tranquillity instead of having to fight for their existence."

54. Mackay, IC, p. 14f. (Italics ours)

folk" to prosper in non-productive vocations like trading, warring and worshipping, when the limits of the productive capacity of the Bronze Age implements were reached in this valley, when no better or more productive equipment for the peasant could be produced, and when small technical improvements could not solve the growing contradictions of the Bronze Age economy, these contradictions stared everybody in the face: Production could not keep pace with the population; the towns and their non-productive, growing population became an ever-increasing burden on the economy, resulting in growing impoverishment of the populace; and a greater squeezing and even naked loot and plunder by them of the peasantry became the order of the day. Simultaneously with the growing weakness in the economic sphere, there was a growth of the military.

No wonder that speaking of the history of a building of the Harappa Period, the archaeologist observes a general decadence during the last days of the Bronze Age : "Comparison of the plans of the successive occupations through which this building (in Mohenjo-daro) survived will show how at the end it deteriorated in importance. In fact, the whole city was reduced to a closely packed mass of small and insignificant dwellings by the constant subdivision of dignified houses of earlier days. Simultaneously, the close municipal control that was so marked a feature of the city's best days seems to have been relaxed; potters' kilns were even established in important thoroughfares instead of being kept rigorously outside the boundaries of the city, and lines of roughly built stalls lined the main streets."⁵⁵

It is legitimate to suppose that with the decline of the prosperity of Mohenjo-daro and other cities in the Indus Valley, owing to the fulfilment of the possibilities of the implements of the Bronze Age, there was also a decline in the civic control and military administration of the people of this locality. The ostensible military strength may have been increased during the last days of the Bronze Age in the Indus Valley; yet, in the final analysis, their capacity to resist foreign aggressions must have declined. We have already

55 Mackay, EIC., pp. 47-48 Cf. Mackay, FEM., p. 6: "Towards the end of the Late Period, the whole of the southern portion of the G Section of the DK mound became an artisans' quarter, many of whose inhabitants were potters, for no less than six kilns, including one in the middle of Central Street, were found in this comparatively small area, and others have probably been destroyed by denudation. This quarter of Mohenjo-daro, if not the whole of the city, must by this time have declined greatly in social standing and organization, for it is difficult to imagine that the city authorities—if they still wielded any authority—would have allowed potters to practise their craft within the confines of the city."

quoted Dr. Mackay's opinion that Mohenjo-daro was attacked at least once in its "later history".

Again, it is long since the explorations of the late Mr. N. G. Majumdar have established that the Indus Valley people were mindful of an adequate defence, by erecting stone fortifications. Examples of such fortifications were found by him at Kohtras and Ali Murad, of which the former site had twin walls, one behind the other.^{55a} Finally, excavational operations, recently undertaken by the Archaeological Survey of India at Harappa, have revealed defensive constructions of no less than three different periods, the earliest one of baked brick and especially brickbats, being in later more prosperous times thickened and strengthened by additional constructions of complete bricks, and the latest one being represented by works that wholly or partially blocked the gate-ways, showing the Harappans "on the defensive".^{55b}

There appears to be sufficient archaeological and other evidence to prove that the civilization of the Indus Valley was swamped wholesale by a ruthless and very powerful enemy, whom many of our predecessors are perhaps correctly inclined to identify with the so-called "Aryans". As stated above, they may be, in our opinion, either the "Aryans" or their predecessors, probably the latter, whom the "Aryans" drove before them. The degradations caused by these foreign invaders, whether Aryan or non-Aryan, must have accentuated the decline of all culture, not only in the Indus Valley, but in Baluchistan etc. An additional factor in the desuetude of these prosperous cities must have been a shift in the direction of the monsoons, which is known to be responsible in all these localities for the growing desiccation of the land—a fact that is noted by Sir John Marshall, Sir Aurel Stein and others for the respective regions.⁵⁶

The evidence about Mohenjo-daro being attacked by some enemy in its later history includes that furnished by several groups of skeletal remains, one of fourteen skeletons, another of half a dozen of skeletons and so on. "All the remains..lay in very contorted attitudes, and the people had evidently died a violent death."⁵⁷ In another group, the remains lay mostly at the bottom of a stair-case in a well, but apparently one woman "had nearly climbed up to the level of the street, but had succumbed on the

^{55a} Majumdar, p. 147.

^{55b} *Ancient India*, No. 3, p. 581.

⁵⁶ Stein, ATWB, p. 61, etc.

⁵⁷ Mackay, EIC, p. 12.

top step. It was thought at first that an epidemic disease must have been responsible for these deaths, but this theory was refuted later by the discovery of two more groups, each containing the remains of at least one decapitated person."⁵⁸ Elsewhere the same authority, Dr. E. J. H. Mackay, states: "The slaughter of children—and there were no less than five in the group of nine—suggests that the raiders nursed a consistent hatred of the people of Mohenjo-daro as a whole, and total extermination appears to have been their endeavour."⁵⁹ All this evidence, be it admitted, is not altogether incompatible with, nay, even supports, the theory of invasion of the Indus Valley by the "Aryans" of the Vedas, who speak so contemptuously about their enemies, and whose priests speak rarely of anything but the victory of the arms of their gods (i.e., of their chieftains), after the manner that is so familiar to the epigraphists of Mesopotamia.

Even the evidence from the buildings of Mohenjo-daro, supplied by Sir John Marshall and his colleagues, is not altogether lacking in details that would prove that the people of the Indus Valley at least knew how to protect their wealth; nor is it lacking in proof about arson. Their carefulness in matters of guarding their own wealth can be measured by the fact that the entrances to most of the houses in Mohenjo-daro, great and small, lie not in the direction of the main streets, but in that of the side-streets or bylanes. Secondly, even Sir John's report speaks of the "fire which consumed many of the Mohenjo-daro buildings."⁶⁰ His evidence also included different weapons of copper and bronze, e.g., axe-heads or "celts", daggers, knives, "lance-heads", arrow-heads, maces etc.⁶¹ True, some of these weapons are supposed to be comparatively weak; for instance, the so-called "lance-head" of the Indus Valley had retained its primitive form, and had not yet developed the mid-rib, that gives it a strength and that is already found in the lance-heads of the contemporary levels in Mesopotamia and Egypt.⁶² But, then, the Indian bow-man may have, as in later times, more than made up for the deficiency in the so-called "lance-heads", which, it is admitted, may after all have been, not lance-heads, but some other weapons, possibly arrow-heads themselves.⁶³ What have been definitely recognized in the Indus Valley as

58. Mackay, EIC, pp. 12-13.

59. Mackay, FEM, I, p. 648.

60. Marshall, Vol. I, 15; cf. p. 10.

61. Ibid., I, p. 35; II, p. 424f.

62. Ibid., I, p. 35, cf. 482.

63. Mackay, FEM, I, p. 459.

"arrow-heads", are "thin, flat pieces of copper with long narrow barbs and no tang".⁶⁴ They are quite similar to the so-called "lance-heads" or "spear-heads", and they differ from the latter only in their size, resembling them in having no mid-ribs. But what is noteworthy is that no similar weapons were in vogue in the valleys of the Euphrates and the Nile. Dr. Mackay states: "No metal arrow-heads of the type found at Mohenjo-daro have as yet appeared in Egypt; nor do I know of this pattern from any Sumerian or Elamite site. Practically identical heads are, however, well known at Minoan and Mycenean sites, though of comparatively late date."⁶⁵

Thus, the Indus Valley may have been ahead of the valleys of the Euphrates and the Nile in matters of defence, enabling the growth of a unique culture in its people. We know from the accounts, left by Herodotus and the historians of Alexander, that the Indian bow-men of a later date had developed and used arrows that were as much as 12 feet long; and it is natural to suppose that such arrows had big arrow-heads. Further, in the *Mahabharata*, we often find the word "bhalla" (=spear) used for "arrow", or a weapon, shot by means of a bow.⁶⁶ Therefore, it is not altogether illegitimate to suggest that the so-called "lance-heads" of the Indus civilization (that have been so named, because they are now deemed unwieldy for being arrow-heads), may in reality have served as arrow-heads.⁶⁷ Be that as it may, that the Indus Valley people of the Bronze Age were ahead of their contemporaries in at least some spheres of technological development, appears to have been proved by the existence of such an object as an axe-adze,⁶⁸ which is unknown to the latter.

Eastward Spread and Decadence of the Bronze Age Civilization in India

One can also visualize the spread of the "Copper and Bronze

64. Mackay, FEM, I, p. 461

65. Ibid.

66. Mhb. (BORI, edn.), IV.43.17 : 40.21, 52.10 and 22; III.153.30 & 43; 110.24; 255.27; etc.

67. While the *Amarakosa* does not mention "bhalla" as a weapon at all, the *Sabda-ratna-samivaya-kosa* of king Shahji of Tanjore (GO. S., Vol. LIX), p.299 endorses the identification of the "bhallas" and the "banas" in the *Mahabharata*: "भला भलिष्ठ बाण स्यात्।"

The *Vaijayanti* makes it an arrow with the head like a *Snuhi* leaf. (III.7.182).

68. Mackay, FEM, I, p. 457f

"Age culture" in one river valley after another . . . in the valley of the Nile, the Euphrates, the Indus, and thereafter, even in the valley of the Ganges. If it is possible to visualize almost simultaneous or successive development of the "Copper and Bronze Age" culture in some of these valleys, it is also true that this development resulted in a rapid growth of population, which, in its turn, must have also been responsible for an ever-increasing "land-hunger", and consequently for the occupation of newer valleys in the neighbourhood. Thus, "fresh fields and pastures new" had to be hunted for, and since the western countries were teeming with population, the only opening lay in the eastern direction, i.e., in the direction of the valleys of the Ganges and the Jamuna. One can thus visualize that "Copper and Bronze Age civilization" must have spread in that direction in all probability after the occupation of the Indus Valley or at any rate after the population had increased up to a point, when fresh lands were needed.

In this way, the cycle went on, until all the valleys were occupied, when the inherent contradictions of this "Copper and Bronze Age" society were made manifest by an ultimate stalemate in the total productivity of it, resulting, on the one hand, in the impoverishment of the commoners, and, on the other, in the increase of armaments, and in the administrative system of the day turning into a police-state. Such a state of decadence of the "Copper and Bronze Age" civilization appears to be well-attested by the famous hoard of Gungeria about which Sir John Evans declared in 1870 that "the most important discovery of instruments of copper as yet recorded in the old world is that which was made at Gungeria in Central India."⁶⁹ About this hoard, Dr. Vincent A. Smith states: "The treasure, which was found carefully packed in a pit near Gungeria, a village in the Balaghat District of the Central Province (about N. Lat. 22°), consisted of 424 copper implements, weighing 629 lb. and 102 thin silver plates, weighing 7 lb. The copper articles include 'bar-celts' more than 2 ft. long, and 'flat-celts' of a very primitive form. Twenty-one of these implements are in the British Museum, and no two of them identical in shape."⁷⁰ The 'flat celts' or 'blade-axes' (as is amplified later) connect these finds of Gungeria with those of the Indus Valley civilization, and speak of the continuity of the "Copper and Bronze Age" culture throughout northern India. Elsewhere, the

69. IGI, (1909), II, p. 67

70. Ibid. The "thin silver plates", referred to here, may well be prototypes of the silver punch-marked coins.

same authority states, in relation to the same Gungeria implements, that they were hammered ones, consisting of pure copper, and that "there are (among them) also many long crow-bar-like instruments, with an expanded lunette-shaped chisel edge at the lower end, which may be designed as 'bar-celts'."⁷¹ These are probably of post-Harappa period.

To explain: The dating of this Gungeria hoard presents a difficult problem; nor is the chronological problem easy in the case of other important finds of copper and bronze implements, that were obtained at various sites in the Gangetic Valley. Most of these finds were of copper, and only a few of bronze; but despite this, it appears quite likely that most of these implements etc., are posterior in date to the copper and bronze objects of the Bronze Age (Harappa) Culture of the Indus Valley; that is, that these copper implements and utensils of the Gangetic Valley do not necessarily prove that the Indian Copper Age developed in the Gangetic Valley rather than in the Indus Valley. The reason for the lack of use of bronze appears to lie rather in the fact that tin is a rare metal in the Gangetic plain.⁷²

Flat copper celts have been found, as hinted above, not only at Gungeria, but also in a number of places in the Gangetic Valley, including Rajpur (near Chandpur, Bijnor District U.P.), Bithur or Brahmaparta and Sheorajpur (Kanpur Dt.), Mathura (Mathura Dt.), Mainpuri (Mainpuri Dt.), Kosam or Kausambi (Allahabad Dt.), Indilapur (Shahjahanpur Dt.), Pariar (Unao Dt.), and other places in the U.P., Bartol, Dargama and Bichna (Ranchi Dt.), Haimi (Palamau Dt.) and several places of the Manbhum District, in Bihar, Bhagra (Mayurbhanj Dt.) in Orissa, and Tamajuri (Midnapur Dt.) in W Bengal etc. Sir John Marshall points out that of all the celts found in the Gangetic Valley and at Gungeria, some short ones "with splayed crescentic cutting-edge are not unlike certain specimens from Mohenjo-daro and Harappa, but the type is too common and widely diffused for any conclusions to be drawn from it,"⁷³ and that the long bar celts are quite peculiar to the

71. I.A., XXXIV (1905), p. 233. It must be clarified here that this hoard is also said to have contained a large number of implements for domestic and agricultural purposes. As pointed out by Dr. Smith, this hoard is mainly of copper, so that he is inclined to treat them as belonging to the Copper Age of India. But at that time, the Indus civilization was not recognized; and the typological arguments like those stated above, that would make the Gangetic "Copper or Bronze Age civilization" contemporaneous with, or even later than, the Indus civilization, cannot be very easily dismissed.

72. Marshall, pp. 481; 483 (Vol II).

73. Ibid. (Vol. I), p. 106.

Gangetic Valley. Elsewhere, speaking of "seven copper axes or celts" found in the House XXX of the Block 5 of VS Area, Sir John observes that probably their "edges were hammered out after the plain blades had been cast. Copper axes of this kind have been found at several places in northern India, and one collection of them, which was unearthed in 1870 at Gungeria in the Balaghat district of the Central Provinces, exhibits a striking resemblance to those found at Mohenjo-daro."⁷⁴..... According to Pandit Madhao Sarup Vats, some of the celts found at Harappa "resemble those from the famous Gungeria hoard...and some others are similar to those from Bithur in the Cawnpore District, Pariar (...Parihar) in the Unaor District, and Chandpur in the Bijnor District of the United Provinces."⁷⁵

All this evidence not only testifies to the spread of the "Copper and Bronze Age" civilization towards the Gangetic Valley, but, probably, also to its debt to the Indus civilization and to a comparatively late phase of the Gangetic civilization, rather than the earliest. If the proportion of tin to copper in some of the bronze implements and utensils found in the Gangetic Valley and elsewhere in northern India varies, evincing probably a stage, in which experimentation was carried out, it is just possible that such a stage of experimentation continued throughout the Bronze Age, represented by the Indus Valley civilization, or that what was imported in the Gangetic Valley belonged to an early phase of that civilization, so that further experimentation had to be carried out. Indeed, except in China, nowhere in the whole of the world was the exact proportion of tin and copper, that goes to make the real bronze, achieved or nearly achieved, until the eighteenth century A.D.

Besides such arguments, there is a positive one, that allows us to look upon the "Copper and Bronze Age" civilization of the Gangetic Valley as being, on the whole, later than the Indus Civilisation. It is in respect of the existence of copper swords found in the Gangetic plain. Sir John notes in this connection that "most of the other objects, viz. the long bar celts, swords and barbed harpoon-heads, are quite peculiar to the Jumna-Ganges basin and different from anything known to us either from the Indus Valley or anywhere else."⁷⁶ He further offers a brilliant suggestion, which, however, may or may not be accepted: "Possibly these objects give us our first glimpse of Indo-Aryan culture in the

74. Marshall, p. 230.

75. Vats, EH , p. 90.

76. Marshall, p. 106f.

upper Gangetic Valley."^{76a} In any case, it is well-known that the swords were a rarity in the Indus Valley civilization. We know of only a couple of swords, found at Mohenjo-daro, both of which "are considerably thickened down the middle for strength, and were probably used for slashing rather than for thrusting. The larger of the two Mohenjo-daro swords measures a little over one and half feet. One of the earliest swords was unearthed by Prof. Flinders Petrie at Tell el-Ajjul in Palestine, and that was assigned by him to the period of the Old Kingdom of Egypt."⁷⁷ But such examples are exceptional. Besides, the Fatehgarh swords appear to be more akin to the Indus Valley swords in style than to the Palestine sword. Therefore, the finds at Fatehgarh and other sites in the Gangetic Valley of heavy copper swords would betray a rather late date for all the associated objects though they be of pure copper.

Harpoon-heads, spoken of by Sir John Marshall, were found in the districts of Kanpur, Una, Badaun, Bijnor, Etawah, Shahjahanpur, Mathura, (all in U.P.), etc., and they would also signify a later culture, since it is difficult to imagine that having once attained popularity in the Gangetic Valley and in India generally, they should have been later discarded by the authors of the Indus civilization: They are conspicuous by their absence in that civilization. Among the copper axes of northern India, some of the most intriguing ones are included among the finds of the Mayurbhanj State—these are of the shape of "double axes", that are so rare in India but that are so common in the Cretan Culture of Bronze Age. Less interesting are the spear-heads (?) or arrow-heads), found in the districts of Kanpur, Etawah, Shahjahanpur etc., that resemble in many respects those from the Indus Valley.

Thus it is possible to hold that the large hoard of weapons found at Gungeria, like some others found in northern India, re-

^{76a.} Compare R. Heine-Geldern, "New Light on the Aryan Migration to India" (Bulletin American Institute for Indian Art and Archaeology, Vol. V, 1937, June), p. 7: "Our research has proved with certainty that there must have been cultural intercourse of some kind between Northern India on the one hand, and West Persia, Transcaucasia, the Northern Caucasus and South Russia on the other, during the period from about 200 to 1000 B.C., and that distinct traces of their connections are to be found in North Persia (Hissar IIIc, Tureng Tepe). Everything else, all interpretation of these finds as traces of a great ethnical migration, their connection with the Vedic Aryans is yet only hypothetical, though this hypothesis has extremely strong reasons speaking in its favour." Surprisingly, we have come to almost identical conclusions from an altogether different evidence. See below Chapter XV, under the section "Ancient Armenians and Iranians." Read also *Ancient India*, No. 7, p. 37, for certain rectifications.

^{77.} Mackay, IC, p. 127. For Mallia Palace sword, see Chapter XIV, under 'Aegean Civilization of the Bronze Age'.

present a late phase of the "Copper and Bronze Age" civilization in India, when increasing social production was diverted from the sphere of consumption to that of protection of the useful wealth in the hands of a few.

A Speciality of the Indus Civilization

The "Copper and Bronze Age" is the age of the first big monuments of the world, apart from the funerary megaliths: It is the age not only of the pyramids, which were in a sense a continuation of such megalithic monuments, but also of the ziggurats and the palaces of priest-kings. Since such leaders of the 'tribal' or 'civic' states combined in themselves—as in China, Mesopotamia, and Crete—the offices of both the chief priests and the kings, and led the people in religious and military matters, they were naturally in a position to gather an excessive surplus, which enabled them to build for themselves in course of time big temples and huge palaces.

What the actual state of affairs in the Indus Valley during the so-called "Chalcolithic Age" (or the Bronze Age) was, cannot be stated for certain, until we are able to decipher the script of this locality. Unfortunately, the latter has defied so far any satisfactory solution, despite the claims of a number of savants. Or, it may be deemed for the present, to have been deciphered by some savants, to the satisfaction of none else but themselves! When it be deciphered to the satisfaction of the scholarly world, it may be, perhaps, found to reveal the existence of a mighty potentate, who was also a priest, or it may reveal the existence of both a king and a royal priest. Yet before we turn to consider such possibilities we may urge some other possibilities.

The state of affairs in the Indus Valley appears to have been somewhat different from that of any other country of the "Copper and Bronze Age" mentioned above. In those countries, we find a very vast difference between the economic condition of the kings of the "tribal" or "civic" states and that of the masses, who are extremely poor. Even the "middle classes", who themselves exploited (by means of trade etc.) the real producers of wealth, viz., the peasants, the miners, the petty smiths etc. or else sided with their chieftains or kings in their exploitation (either by the sword or by the pen), did not thrive either in numbers or in wealth. Thus there was a concentration of wealth in the hands of an infinitesimal fraction of the populace in the case of those countries, which gave rise to a few, very big monuments, together with

a general dearth of small buildings. The poor folk lived in huts or in small despicable dwellings, that did not survive, or else left remains that bespeak the poverty of their occupants.

In India, on the other hand, we witness quite a large number of well-built, spacious houses, which, as said above, reveal the existence of a prosperous community of "middle class" people.⁷⁸ "The ground-floor of a small house averaged 27 x 30 feet measured outside, and a large one was about double this size."⁷⁹ Indeed, in the determination of the nucleus of the administration in the cities of the Indus Valley, the difficulties, arising out of these new factors, are enormous; and there is a substantial element of truth in what Prof. Gordon Childe observes: "It is even uncertain what was the nucleus of capital accumulation. We have indications of a division into classes of rich and poor, but whether a king or a god (correct this to 'a priest') stood at the head of the hierarchy is uncertain. Both temples and palaces are so inconspicuous among the ruins that their very existence is dubious."⁸⁰

Oligarchy in the Indus Valley?

Under these circumstances, we are led to believe in the existence of an oligarchical system in the place of the institution of the "priest-kings", or "tribal" or "civic" heads, in the Valley of the Indus. Literary tradition, as embodied in the great Grammar of Panini and the accounts of the Greek writers, bears out the existence of such an oligarchical institution—rather its developed form, known as the "gana-rajyas"—during the latter half of the first millennium B. C., in almost the same region (comprising the Vahika and Sindhu-Sauvira countries, together with Afghanistan, Baluchistan etc.), where the Indus civilization flourished.⁸¹

It is also legitimate to conjecture that the existence of the large "middle class" is incompatible with the rule of an all-powerful "priest-king" and that it is only under such an oligarchical system that a large number of prosperous families and a few wealthy "great households" could flourish in those days. The "great households" obviously belonged to the oligarchical heads of tribes or cities, that were known in the early non-Vedic literature (that belongs to a much later date) as the "gana-mukhyas". Other houses of smaller dimensions probably belonged to traders or

78. Supra, p. 278.

79. Mackay, EIC., p. 25.

80. Childe, MMH., p. 168.

81. See S. K. Dikshit, *Sindhu-nadi-taril Sanskriti* (in Marathi, 1046. Poona), p. 9.

smiths—larger ones to the heads of various guilds—or else to the warriors, or scribes or priests. The existence of a great and rich trading community in the Indus Valley is borne out, not only by archaeological considerations, but also by all the known subsequent history of this region—we have in our mind, the *Panis* of the *Vedas*, and the traders of the *Jatakas* and of the Muslim chronicles. Since this bespeaks a continuity of tradition, the oligarchies of Mohenjo-daro and Harappa could well be regarded as the prototypes of the *gana-rajyas* of later days.

Though we have no means of knowing exactly what cultural advance they made, the Indus Valley people appear to have been the cleanliest folk among their contemporaries. This is borne out by a number of considerations, including the sewage-system and the bathrooms. The former, which is so well demonstrated at Mohenjo-daro, Chanhу-daro and other localities, "is certainly the most complete ancient system as yet discovered. Every street had its brick-lined drainage channel—sometimes two—and so had even quite small lanes; and into these main drains ran smaller tributary drains from the houses on either side."⁸²

As to the bath-rooms, we learn that practically "every house had its bath-room, which was always placed on the street side of the building for the convenient disposal of water."⁸³ Such a thing, again, is hardly found anywhere else in the ancient world, and at least in the Bronze Age it is unique. During the Bronze Age in Crete, and during the early Iron Age in Greece and some other countries, we undoubtedly come across arrangements of bath-rooms, and especially allusions (inscriptional or pictographic) to ceremonial baths, that the commoners occasionally took, or to purificatory baths, that were in vogue in sacerdotal classes. If the latter may have taken one or more baths daily, the commoners appear to have washed themselves rather rarely. But in the ancient cities of the Indus Valley, even the commoners probably bathed frequently. Here we find well-built bath-rooms, that "are invariably well-paved, and usually connected with the street system."⁸⁴

In the opinion of Sir John Marshall, the wells, bath-rooms, and sewage-system of Mohenjo-daro are "evidence that the ordinary townspeople enjoyed here a degree of comfort and luxury unexampled in other parts of the then civilized world."⁸⁵ But one may

82. Mackay EIC., p. 35.

83. Ibid., p. 31.

84. Marshall, I., p. 16.

85. Ibid., I. Preface, p. vi

point out that with greater technical equipment or a higher technological development, a number of other countries could, no doubt, produce greater material "comfort and luxury", though they failed, for social and other reasons, to produce such a sense of sanitary arrangements, or a hygienic sense that accompanies a daily bath—for which the social system prevailing among the ancient inhabitants of the Indus Valley, as well as their philosophical and religious outlook, must have been, for the most part, responsible. Undoubtedly, material comforts and luxurious amenities were factors that helped, together with the climate, the habit of a daily bath among the well-housed people of the great cities of the Indus Valley. But these factors cannot, by themselves, explain the custom of habitual bathing, that appears to have been popular with all and sundry among the dwellers of these houses. It is quite possible that the peculiarly Indian popularity of bath-rooms, that is met with here, was due to the existence of a large number of people, belonging to some leisured class like that of the priests, as well as to the fact that such a class probably made its influence and the influence of its ideology felt among other sections of the populace.

The Origin of the Caste-System

Thus, we confess, we are inclined to see in the Bronze Age population of the Indus Valley a nascent form of caste-system—which included the military caste, the trading caste, and the sacerdotal caste—which is peculiar to India, which replaced the slave-system of the Western countries, and which, we already find clearly, though perhaps in a somewhat flexible form, among the "Aryans", that produced the *Rik-samhita* and other Vedic literature. It is, perhaps, the rich fertility of the Indus Valley and the precocious development of the Bronze Age civilization in its towns that obviated the necessity of such ruthless exploitation of man by man, as is entailed in the slave-system. Not that the caste-system was taken up as a humane measure, or was even encouraged by the priesthood of this valley consciously, because of their humanitarian outlook. No society is ever formed consciously out of mere humanitarian outlook of any priesthood, against the current of history. It is for us to find out the historical conditions that conspired to replace the slave-system of the western world by the caste-system in India during the Copper and Bronze Age. It is also for us to find out how ancient the latter system is.

We know now the historical, socio-economic causes, that gave rise to the slave-system, in the western world; we know that it arose out of an inevitable division of the society, that came into being with the commencement of the Copper Age. We do not find a shred of evidence about the prevalence of the slave-system in India, so that it is natural to conclude that the caste-system originated here with the beginning of the Copper Age. The Vedic priesthood that we already find in such an almost full-fledged form in the earliest of the Vedic works, did not evolve (indeed, it could not have evolved) all of a sudden, and out of nothing.

According to our view, its roots are to be found in the priesthood of the Indus civilization. The existence of the elementary form of the caste-system in this civilization appears to be vouch-safed for not only by such factors as prove the existence of a large number of priests, but also by such as prove the existence of the street-scavengers. If the seals containing religious motifs, the bath-rooms etc., testify to the existence of the former, that of the latter is attested by what we learn from the following observation of Sir John Marshall: "Rubbish chutes or flues descending from the upper storeys were also constructed in the thickness of walls and were sometimes provided on the outside with a bin, which could be cleared by scavengers from the streets."⁸⁶ When once the existence of scavangers is granted—and it has to be for explaining this archaeological datum—the conclusion is inescapable that the caste-system existed at least in an elementary form already in the Bronze Age culture of the Indus valley. It may also be granted that the scavengers represented the lowest stratum of the populace, and that the so-called "menials' quarters" that we find in Block 5 of the Section B in Area marked HR and that "have no more than two rooms"⁸⁷ each, do not belong to this "scum", but to some others, that had a somewhat higher social status than these "lowliest of the low". What a great difference there must have existed between them and the members of the ruling classes or the chieftains, that regulated and controlled the civic life of such large cities as Harappa, Mohenjo-daro, Chanhudaro, Ali Murad etc.! It is, then, not the "Aryans" (or the "Indo-Europeans") that were responsible for introducing the caste-system into a "non-caste" social structure of India, as is often supposed, but it is the people of the Indus Civilization (who are to be distinguished from the "Aryans" according to the arguments given elsewhere in this

86. Marshall, I, p. 16.
87. Ibid., p. 17.

work), that must be held responsible for this "social sin". Again, it is out of real, historical or material causes that they evolved the elementary form of the caste-system, which could not be planted on this soil from abroad, by any ingenious devices of an enlightened, foreign priesthood, or by the sword of a foreign conqueror. If the "Aryans" did anything, it was to accentuate the historical process already in action in this soil. Their inability to introduce it elsewhere shows that this system was foreign to the "Aryans" themselves.

Nature of Political Organization

Yet, as stressed above, for want of decipherment, we cannot accurately describe either the social structure or the central political organization with any amount of certainty; i.e., we cannot know the names of the various castes and sub-castes of this period, nor can we ascertain whether it was a "theocratic" rule, or a secular kingship, or an oligarchy. Speculations are rife among the archaeologists as to the nature of the body politic of this time, of course, on account of the inadequacy of material and a want of thorough-going investigations, but these support partially each of these hypotheses, about the nature of the central political organization.

Miss Dorothy Mackay says: "Dr. Wheeler has recently investigated... a central mass of buildings among the ruins of Harappa, which he regards as a citadel and stronghold of a bureaucratic or priest-king regime. At Mohenjo-daro, there is some evidence that the regime was a theocracy, very similar in type to the contemporary theocracies of Sumer."⁸⁸ Dr. Mackay himself, however, urged that "a large, straggling building has been discovered which *may have been a palace*. It is possible, however, that this was not a royal residence, for the city, being smaller than Harappa, may have been ruled by a governor. A governor could have carried on the administration from this building besides living in it, as there is ample accommodation, in addition to guard-room, servants' quarters and a number of commodious storerooms. Other large and important buildings may also have been administrative centres."⁸⁹ This theory about governorship assumes the existence of an imperial authority, which through its army could exercise

88. Mackay, EIC, pp. xii-xiii (Preface).

89. Ibid., p. 14; also Mackay, IC, p. 12. (Italics in the quotation, ours.) See below, pp. 204f

its control over distant towns—a state of affairs, similar to that of Egypt and Mesopotamia, where powerful city-states, having conquered weaker ones and made them pay tributes, tried as far as possible never to allow them to grow big or to assert themselves. It is doubtful, in our opinion, if the same could be practised in respect of a big city like Mohenjo-daro, having quite a large number of wealthy noblemen in it—as will be shown presently—by a ruler living at such a distant place as, for instance, Harappa, although the latter may be bigger than the former. We must take into account the fact that Mohenjo-daro must not have been the only big city to be tackled by the potentate at Harappa or any other metropolis, and also another that the means of communications must not have been very well developed at that time, to enable him to put down immediately and with a strong hand any insurrection or attempt to assert their freedom by any of the powerful nobles living at such distant places.

We must also remember that it is easy for such a large and well-provisioned city as Mohenjo-daro, with the ability to purchase a sufficient number of bronze weapons, to resist the invasion of another bronze-equipped army, coming from afar. Harappa is indeed, far removed from other prosperous and powerful cities like Mohenjo-daro, so that it would have been well-nigh impossible for a governor, equipped with a few battalions, to keep any of these latter cities under subjugation for a long time; and, there was also another danger if these governors were themselves allowed to possess big battalions, and to rule over such wealthy cities! The most natural hypotheses would, therefore, be those that envisage an independent local rule in each of these cities; and of these, the most satisfying would be those that are compatible with the evidence, unearthed by the archaeologist's spade at Mohenjo-daro etc. indicating the existence of a large middle class and also with the evidence, left by later literary material, that can be mainly gathered from the Vedas, the grammatical work of Panini, the information in the Pali texts and the accounts left by early Grecian and Roman writers, about the countries, known to the indigenous literature as the Sindhu-Sauviras and the Vahikas.^{89a}

It may be noted that what has been called "a palace" by Dr. Mackay is only one of the two most important buildings in the city (i.e., outside the area of the stupa) that have so far come to light in the city of Mohenjo-daro, when we find it at its most pros-

89a. Vide supra, p. 289.

perous, flourishing period. Indeed, archaeological evidence points to the so-called "palace" being the smaller of these two adjacent buildings, the other being declared to have been larger even "than either the Collegiate or Great Bath building", which may be described later. We learn that in the north of the city, on the northern side of the so-called Central Street, there is "a particularly imposing building," which "calls for further excavation before its nature can be established. This structure, which is about 242 feet by 112 feet, has outer walls over 5 feet thick. It seems not improbable that deeper excavation may reveal a building of even greater extent, for its northern and eastern walls reach the slope of the mound....and it seems likely that this important buildingwas erected at the zenith of the city's prosperity, and possibly upon a lofty mud-brick platform."⁹⁰ We are told further that only a "short distance south of it is *what was apparently a palace*....this (palace) was a large and important building of excellent masonry, arranged round two spacious courtyards, with servants' quarters, a number of storerooms, and in its earlier days, accommodation for metal workers as well. It is about 220 feet long and 115 feet wide, with walls in some places over 5 feet thick."⁹¹

Thus it is quite possible that these two most important buildings may have belonged to two of the wealthiest families, the "great households" of Mohenjo-daro, that also provided two chieftains (*gana-mukhyas*) to this oligarchical city-state. But then, we must also take into account the Stupa area and the adjacent "Collegiate". What Dr. Mackay describes as the "most imposing of the great buildings of Mohenjo-daro" lies unfortunately hidden beneath the Stupa.⁹² The existence of the Stupa, as also of an elevation of about 20 feet, on which this building appears to have been erected, and the close affinity between the Indus Valley civilisation and the Sumerian culture—all these go to prove the existence of a sacred ziggurat-like structure at this place, that sanctified that place much prior to the erection of the Stupa.

Indeed, "excavation has in fact already laid bare a number of buildings round about the Stupa mound, which can hardly be interpreted otherwise than as belonging to a great priestly corporation,"⁹³ namely, a building of great size, measuring some 230 feet by 78 feet, immediately west of the Stupa mound, the rather small-

90. Mackay, EIC, pp. 46-47.

91. Ibid., p. 47. (Italics ours). See above pp. 293f.

92. Cf. Childe, N.I.M.A.E., p. 207:—"But no temple or palace dominates the rest...." (as in Mesopotamia, Crete and elsewhere).

93. Apparently, the priests had a separate locality assigned to them.

er Great Bath building....the curious series of (eight) bath-rooms to the north of the latter, and....the remains of a large court north of the supposed temple....The position of this court in relation to the supposed temple beneath the Buddhist Stupa recalls to mind the similar great court at Ur, between the quays and the House of Nannar. In that great khan-like court at Ur, it is thought, payments in kind were collected for the temple revenues. The same might be true of the great enclosure in this part of Mohenjo-daro."⁴ Again we learn that "Some distance to the south of the Stupa mound in the L Area was a large building, which was probably a feature of the commercial life of the city. This was a spacious hall, some 85 feet square, with a roof supported by twenty rectangular brick piers, set with great accuracy in four rows of five piers each...."⁵ All this shows the great importance of the Stupa area and of the Ziggurat-like structure, that in all likelihood lies hidden beneath the Stupa. All this further makes clear that the various possibilities suggested above about the exact nature of the political organisation of the Indus civilization may each be supported by this or that argument, and that we can hardly arrive at any agreed conclusion, unless and until the script is satisfactorily deciphered."⁶

Typical of another class of important structures are two buildings, that are at once considerably smaller than those described above, but much bigger than the most ordinary ones, found in the city of Mohenjo-daro. These, indeed, appear to represent the households of the secondary rank of leadership in the town, whether it be military or commercial. One of these is Building No. VIII of HR Area, Section A, Block 3, which has a frontage of 85 feet and a depth of 97 feet, and has its outer walls from 4 to 5 feet in thickness. The other of these, Building No. XIII in the VS Area, has a frontage of 67 feet and a depth of about 80 feet. In this context, the following observations and conclusions of Prof. V. Gordon Childe, supplementing his observations given above (at the beginning of this discussion), become at least interesting: "At Mohenjo-daro a building, occupying a whole block, provided with bath-rooms and a porter's lodge and covering as much as 97 feet by 83 feet, may be contrasted with monotonous rows of

4. Mackay, EJC., p. 40f.

5. Ibid., p. 45.

6. Throughout all this discussion, it is taken for granted—primarily on account of our own ignorance—that Prof. B. Hrozný's attempt at deciphering this proto-Indic script is not satisfactory, despite what we urged in *The Mother Goddess*. (See the preface to M.G.).

mud-brick tenements, each consisting of only two rooms and a court, and not exceeding 56 feet by 30 feet in overall area. The contrast doubtless reflects a division of society into classes, but it would seem only into merchants or 'business men', and labourers or artisans. A surprising wealth of ornaments of gold, silver, precious stones and faience, of vessels of beaten copper and of metal implements and weapons, has been collected from the ruins. Most appear to come from the houses ascribed to 'rich merchants'. (These might as well have belonged to a powerful landed gentry or 'Sardars' of old—S.K.D.). But a hoard of copper tools and gold bangles turned up in the 'workmen's quarters' at Harappa. None are suggestive of royal treasures."⁷ In this quotation, Prof. Childe omits any reference to either of the three biggest structures of Mohenjo-daro, mentioned above, and also to the smallest ones, of 30' by 27'—which (as suggested above) could hardly have been the dwellings of the scavengers, and may not have been even of potters. The contrast presented by the lowest and the uppermost classes, therefore, does not merely reflect a common two-fold division of society between the "rich" and the "poor", but a different type of division of society—a four-fold one, we think, with at least a few subdivisions—that was apparently created gradually in the peculiar conditions of India with the beginning of the working of the Copper Age economy. That the guildmen or families, belonging to different castes or professions, were made to dwell in different localities or parts of a city or a town in the caste-ridden society of India, is made clear by the Kautiliya Artha-sastra, the work of Megasthenes, the Pali texts etc. And the Harappa Culture has apparently the same pattern.

The Indus Script

The pictographic script, found on the seals of Mohenjo-daro and Harappa, is one of the most noteworthy and at the same time intriguing features of the Bronze Age civilization of the Indus Valley. It is known to bear a close resemblance, on the one hand, to the early Sumerian and proto-Elamite scripts, and, on the other hand, to the pictographic scripts of the Easter Island (in the south Pacific Ocean) and the Lo-lo (of the Yün-nan and Sze-ch'uan provinces of South China). On the basis of the former fact, a popular theory about racial connections between the Sumerians and the proto-Elamites, on the one hand, and the authors of the

⁷ Childe, WHH., p. 113

Indus civilization, on the other, has been put forth. This theory is, no doubt, supported by a good deal of archaeological evidence as well as anthropometrical data, that may not be detailed here. Nevertheless, a student of history must also bear in mind other possibilities, including those arising from the connection of the script of the Shang dynasty of the Bronze Age of China, and the Indus script, and also the fact that the Lo-lo's of China have been identified with the people who gave their name to the country of *Lala* or *Lata*, that is roughly identical with modern Gujarat excepting Kathiawar. Nor, indeed, should one forget, despite historical arguments to the contrary, the possibility of derivation of the Brahmi alphabet from the Indus script, which was long ago suggested by Prof. Langdon and which has apparently served as the basis of the work of Prof. Pran Nath of Banaras and also, perhaps, of the distinguished efforts of Prof. Hrozny of Prague.

In this context, certain observations, perhaps of no more worth than those of many of our predecessors, may be made here.^{97a} In the "Sign List of the Indus Script", given in Marshall's *Mohenjodaro and the Indus Civilization*, pp. 434f., occurs as No. 61, the figure of a "bow and arrow", and the "bow" is known as "dhanus" in Sanskrit, and the figure of the "bow" (as given in that simple pictograph) signifies in the Brahmi script the letter "dha". Again No. 59 of the same "Sign List" represents the figure of a "peacock", which is called "mayura" in Sanskrit, and this figure is classified by the author of that list along with a number of others (Nos. 47 to 60)—quite rightly, we believe—that with a change of position could be easily read as Brahmi "ma", or a derivative thereof. Nos. 70, 72, 75, 76, 77 and 88b to 92 appear to form a single group representing variant forms of (or evolving out of) the same letter, which reminds one of the Brahmi "ya"; of these signs, No. 70 and even Nos. 75, 76 and others, would show the union of two parts, or would represent a "twin"; and in Sanskrit, "yama", "yamaka", "yamala", etc. signify a "twin". Even if this is fanciful, it would be interesting to note that both the main types of Asokan Brahmi "ya" (with two limbs at bottom or with only one limb), can be thus derived from the different forms of this sign in the Indus script. However that be, any serious attempt to multiply such instances based mainly on the hypothetical assumption of the

^{97a} The following tentative attempt is made only on the assumption that the Brahmi script, known to Asoka, had its roots perhaps in the indigenous script of the Indus Valley, rather than in a foreign script. Here, therefore, we have ignored the probability that the Indus script may not have been alphabetic and also a number of other things.

script being a prototype of the Brahmi, or of the "Aryans" being the authors of this culture, is likely to land us in the realm of conjecture rather than that of historical reality.

Quite a vast majority of the seals, that were unearthed at Mohenjo-daro and other sites, were of steatite, but a number of them were of faience, and a few others of pottery. Apart from the fact that writing originated as a result of commerce, or that the seals of Susa and some other localities are known to conform in weight to the Babylonian and other weight systems, there are some weighty considerations to prove that the seals had no mere amuletic significance, but that they represented authentic emblems of commercial transactions. Many similar seals in Mesopotamia are known to contain accounts of commercial dealing. The animals on these seals as well as other representations on them undoubtedly bore a sacred significance, connected with the cults of the Sky Father and the Earth Mother (or the Mother Goddess); and they may have vouchsafed for the quantity and quality of the goods to which those seals were attached. Dr. Hutton points out the probability that these seals were "primarily used for commerce as cotton fabric bearing a seal impressed with an Indus Valley stamp has been recovered from a prehistoric site in Iraq."⁹⁸ Some of the seals, unearthed at Harappa, "have been considered by Hunter as receipts".⁹⁹

Looking at the seals, it will be seen that many of them contain at the beginning of their inscriptions (as read from right to left) simple vertical strokes, that may be taken to represent numbers: such strokes being in number: one, two, three, four or even more, and when more, being often placed in groups of twos or fours, one above the other. (In Kharoshthi, in the hieroglyphic and hieratic scripts of ancient Egypt, and in ancient Chinese such vertical strokes signify the numerals from one to three and the same must be the case also in the Indus Valley script.)^{100a} Or, often one may find at the beginning of an inscription what has been considered above as the proto-type of the Brahmi letter "ya", i.e., the sign for two; or a wheel-like symbol, representing, perhaps, a cycle of four or five^{100b}—this wheel-like symbol, of course taking a number of forms, including an oval with a compartment at the top, and

98. Hutton, *Caste in India*, p. 135 Mackay, EIC, p. 158.

99. Dikshit, PCIV, p. 43

100a. Also cf. the Roman numerals, I, II, III, etc. Further, in the hieroglyphic, groups of three are found one below the other.

100b. Similarly in Greek \square *pi* represents the 'pente' or five, \triangle *delta* stands for 'deka' or ten, H signifies 'hekaton' or hundred, and so forth.

so forth. (See Nos 219 to 234 in the "Sign List of the Indus Script"). It appears possible to derive the Brahmi "cha" from this wheel-like symbol; and again the Sanskrit word for a "wheel" is "chakra". The "Sign List" would also show, as Nos 219 to 220b, symbols, which are of the same oval form, but without the inner compartment. The late Rao Bahadur K. N. Dikshit has observed that "from a study of the hundreds of specimens discovered, it has been found that the system was binary and decimal, inasmuch as the weights rise generally in multiples of two and occasionally of five, the aberrant weights being few and far between".¹⁰⁰ On the basis of this weight-system, it is possible to assume that the "chakra" symbolized the number *five* and not *four*. Further, as seen above, we find the number four represented by four straight vertical lines; so that it is natural to assume that it is number 5 rather than 4 that is represented by this "chakra" symbol. We often find two empty ovals juxtaposed or joined together, or these or a wheel-like symbol followed by one or more vertical strokes. All this appears to be in conformity with the idea of taking the "wheel-like symbol" for the number *five*. In Sanskrit literature, the words "sunya" (cipher or zero) and "purna" (the whole, a cycle) appear to have conveyed the same sense, especially in philosophical discussions. It is well-known that the system of decimal numeration originated in India. In the light of the suggestions given above, the fact that the numeral system at Susa II "is exclusively decimal, never sexagesimal as in Sumer"¹⁰¹ acquires an added significance, and so does the fact that Warkha-Uruk (in Mesopotamia) knew the decimal system though the sexagesimal was by far the more popular there. Further, it would thus be possible to trace the ancestry of the decimal system to the system of enumeration in the Indus civilization, and to trace the origin of the idea of a cipher to the "wheel-like symbol" found on the Indus seals.

Indus Seals

It is legitimate to suppose that the letters that follow these "numbers" contain some sort of accounts, or mention weights, prices etc., or some other details of transactions. But all this foregoing discussion must be looked upon for the present more or less as speculative. Excepting in certain respects, it is based on the assumption that the authors of the Harappa Culture were

^{100.} Dikshit, PCIV, p. 30.

^{101.} Childe, NIAME, p. 243. See above, pp. 248, 249.

identical with the "Aryans". None the less, there is even otherwise sufficient evidence to prove that these seals were used for some commercial purpose. Engraving of sacred animals, symbols and pictographic letters seems to have become an important art in the Indus Valley, that was practised there with a great distinction. Some such typical seals of undoubted "Indian workmanship" were found at various sites in Mesopotamia, including Kish, Ur, Umma, Tello etc., and at Susa in Iran (or Persia).¹⁰² Dr Frankfort discovered at Tell Asmar an important seal of such a type, containing representation of some Indian animals such as elephant, rhinoceros, crocodile (makara or gharial) etc., "none of which (it was at one time alleged) ever appears on Sumerian or Akkadian seals."¹⁰³ Recently, however, another like seal is found at Ashnunak, which depicts the figure of a rhinoceros. Prof. C. J. Gadd has published another seal, round in shape and found in the pre-dynastic cemetery at Ur of the Chaldees, which contains the representation of a humped, short-horned bull, that betrays its Indian origin.¹⁰⁴

A few other seals, that also appear to be of Indian workmanship, and that contain the peculiar pictographs and other devices etc., found on the Indus seals, are known from other localities in Mesopotamia and elsewhere. Some of these, like the Tell Asmar seal of Dr. Frankfort, are known to have been accompanied by "other objects apparently Indian in origin", like the "pieces of bone inlay of peculiar shape."¹⁰⁵ The commercial and cultural contact, between the Indus Valley and other countries of the Bronze Age, could be visualized also from another type of evidence, made available by the seals. Writing about the peculiar "rayed Sun motif", Prof. Mackay says: "It has been said that this solar sign does not occur on pottery from Mohenjo-daro, but something akin to it has been found there carved on a seal. This is a six-rayed object with one ray terminating at the head of a horned animal.... No examples of this radiant form of the sun-disc appear on Sumerian or Elamite pottery though it is known on Sumerian seals, from Tell Asmar and Kish, and again on seals from Susa."¹⁰⁶

102. Mackay, EIC., p. 146f.

103. Ibid., p. 147. Frankfort, *Archaeology and the Sumerian Problem* (Ori. Inst. of the Univ. of Chicago: Studies in Anc. Ori. Civilization, No 4).

104. "Seals of Ancient Indian Style found at Ur" (*Proc. British Academy*, XVIII).

105. Mackay, FEM., p. 7.

106. Mackay, CE., p. 95f. This six-rayed solar symbol is found also on ancient Indian punch-marked coins and is known to Indian numismatists as the "shad-ara-chakra."

Again, we learn that a motif of concentric square, that may have been regarded as magical and that is found at Tell Asmar by Prof. Frankfort, is "duplicated on the ancient Indus seals".¹⁰⁷

Similarity in Arts and Crafts in Sumer and the Indus Valley

We may now turn our attention to the general similarity between the arts and crafts of the Indus Valley and those of the Euphrates Valley. For this purpose, we shall only juxtapose the observations of various authorities about their respective fields, which bring out briefly the richness and diversity attained by the arts and crafts of both these countries, probably in close cultural contact or co-operation with each other:

Prof. E. A Gardner observes:—"The finest examples of handicraft come from the royal tombs (of Mesopotamia) But they show the highest skill in design and technique, both in metal, mostly gold and silver, and in inlaid work in various materials."¹⁰⁸ Another aspect of that civilization is stressed by Prof. V. Gordon Childe in the following: "Among the Sumerians, vessels of gold, electrum, silver, copper, alabaster, obsidian, lapis lazuli, and ostrich-shell had ousted fine pottery from the tables of the wealthy while the friezes of animals painted on the prediluvian clay vases have been replaced by the processions carved in low relief in the stone vessels. Sumerian pottery was a thorough factory product, but technically of good quality, hard-burnt, drab in colour and turned on the wheel."¹⁰⁹ Again, the "ear-rings, necklaces, diadems, pendants illustrate better than anything else the supreme skill of the Sumerian goldsmiths and so give a welcome indication of the level of civilization attained."¹¹⁰

We have already spoken of the pottery of the Indus Valley, that is well comparable to that of the Sumerians. As to the other aspects noted in the afore-quoted observations, especially those noted by Prof. Childe, they may be aptly compared with those referred to in the following remarks of the late Rao Bahadur K. N. Dikshit about the culture of the inhabitants of the Indus Valley: "The love of bedecking the body with ornaments; to which the women of India have always shown considerable weakness, is amply illustrated by the variety and richness of the jewellery and beads found at Mohenjo-daro and Harappa. Every known variety

107. Mackay, EIC., p. 150.

108. OMK., p. 528. Cf. supra, pp. 254 f.

109. Childe, MAE., p. 181.

110. Ibid., p. 190.

of semi-precious stone was pressed into service, and all known metals, such as gold, silver, electrum, copper and bronze, besides faience, shell and terracotta, were utilized for satisfying the needs of the different classes of people. Several hoards of jewellery, placed in vessels of silver, copper and bronze have been discovered besides a number of isolated finds.... This (one such hoard) contained, besides gold pins, large silver ear-rings and other ornaments, two fine girdles of carnelian beads The way in which the carnelian beads have been polished and perforated bespeaks great technical advance Bracelets must have been rather common, one of the finest examples consisting of six strings of gold beads with semi-circular gold terminals at each end Bangles have been manufactured in a variety of materials including gold, silver, copper, faience, shell, and terracotta."¹¹¹

The music of the Sumerian courts is made known to us by the buried treasures of the royal graves at Ur. We find there the royal harpist as well as the entertaining girls of the harem, accompanied by their harps even in their "life after death". The origin of stringed instruments like the harp must undoubtedly have been suggested by the bow. The harp was a popular instrument in the Bronze Age, and it can be traced among the Egyptians, the Sumerians, the Babylonians, the Assyrians, the Elamites, the Persians etc. In respect of the popularity of music among the Sumerians, considerable light is thrown by Prof. Francis W. Galpin in his *The Music of the Sumerians* etc. (Cambridge, 1937), wherein a number of Sumerian musical instruments, including harps, are treated. The results of his investigations have been touched upon briefly by many scholars. According to Prof. V. Gordon Childe, the Sumerians had in their temples "a regular orchestra of drums, rattles, flutes, horns, trumpets and harps."¹¹² Prof. R. Campbell Thompson also says: "To the temple (of the Sumerians) were attached many musicians and singers, who formed choirs to play on lyres, tambourines, reed-pipes, cymbals and perhaps bag-pipes and chant in unison."¹¹³ Music has ever been the pride of Indian civilization, and even in the Bronze Age, the Indians appear to have been as much fond of this art as the Sumerians. In this connection, the following observation of the late Rao Bahadur K. N. Dikshit, who was himself an authority in the difficult art of modern Indian music, is worthy of citation: "....it seems probable that the earli-

¹¹¹ Dikshit, PCI\, pp. 26-27 Note the use of electrum here as in Sumer

¹¹² Childe, WHH., p. 124

¹¹³ CAH, I, p. 533

est stringed instruments and drums (with which to keep rhythm in accompaniment with the music), are to be traced to the Indus civilization. In one of the terracotta figures, a kind of drum is to be seen hanging from the neck, and on two seals we find a precursor of the modern mridamga with skins at either end. Some of the pictographs appear to be representations of a crude stringed instrument, prototype of the modern bina; while a pair of castanets, like the modern karatala, have also been found."¹¹⁴

All such details would only strengthen the hypothesis that there was an intense culture-contact between the countries, Indus Valley and Mesopotamia, or even that the culture of these two regions was largely the same—whether this was due to their authors belonging to the same racial stock, or to the Sumerians being an important section of the population of the Indus Valley, or to mere trading. Both the Sumerians and the Indus Valley people were great commercial nations. And if the Sumerians were the precursors of the Phoenicians, the successors of the Indus Valley people (if not the latter themselves) appear to have been connected with the Panis, whom a number of writers, including the present author,¹¹⁵ have sought to identify with the Phoenicians. We shall refrain here from touching upon the problem of racial connections between the people of the valleys of the two rivers, the Indus and the Euphrates, except for drawing attention to the conclusions of the two authorities, Col. Sewell and Dr. Guha, who have sought to prove that the Proto-Australoids and the Mediterraneans comprised the vast majority of the populace of the metropolis of Mohenjo-daro. They were both dolichocephalic, and, according to Dr. Mackay, "they agree in many ways with skulls found by Woolley at al-'Ubaid, by the writer at Kish, and also at Anau, Nal, and other sites."¹¹⁶

It is unnecessary to dilate here upon the commercial contact that was built up and maintained by the people of the two valleys, after the evidence of the pottery forms and motifs and the seal-amulets has been cited. But we may briefly indicate the evidence from other spheres of life also. In his *Hibbert Lectures*, Prof. Sayce pointed out long ago that Indian teak was exhumed in the ruins of Ur of the Chaldees, and that it belonged to a very early date. Again the word "Synthos" (Sindhu) is found mentioned, according to him, in an old Accadian list of articles brought from

114. Dikshit, PCIV, p. 30. But now read Piggot, *Prehistoric India*, p. 270.

115. Read *The Mother Goddess* (1943, Poona). (See "Panis" and "Phoenicians" in the Index of that work).

116. Mackay, EIC., p. 153.

afar; and it evidently signifies, in the context, cotton cloth, apparently brought from the valley of the river Sindhu (or Indus).¹¹⁷ The evidence of beads made of the green amazonite, found in the *ol 'Ubaid strata* would, perhaps, also indicate early commercial transactions in the same direction; since it is said to be "found only in Central India and Transbaikalia".¹¹⁸ The debt, that the Mesopotamians owed to the Indus people in matters of architecture, is emphasized by the researches of Sir John Marshall and others: "At Ur Mr. Woolley has unearthed a group of moderate-sized houses of burnt brick, which constitute a notable exception to the general rule; but these disclose such a striking similarity to the small and rather loosely built structures of the latest levels at Mohenjo-daro, that there can be little doubt as to the influence under which they were erected."¹¹⁹ It is, indeed, more logical to suppose that the highly developed architecture of the Indus Valley cities influenced that of the Mesopotamian cities, rather than that the opposite took place.

Such influence is, indeed, seen in ideological spheres also. Prof. Childe has recently stated: "So a scene carved by a local Sumerian artist on a vase, recovered from a ruined city on the Diyala, depicts an Indian cult being celebrated apparently in a local shrine in Akkad. If cults were thus transmitted useful arts and crafts could be diffused just as easily."¹²⁰ Corroborating this is the fact, noted by us above, about the find of typical Indus seals at Tell Asmar, Ur and other sites of the West. They would reveal not only considerable import of commercial products in that region, but, perhaps, even religious influence of the authors of the Indus civilization. The authentic nature of the transactions, made under the auspices of the sacred divinities found in animal forms on the seals, was in all probability recognized without hesitation by the traders of the West. It is, we believe, made amply clear in our work, *The Mother Goddess*, that there was essentially little difference between the forms of religion prevalent in different countries of the Copper and Bronze Age, or between the divinities worshipped in different lands in those days. This factor must have made it not very difficult for local elements of any country in the Near East to accept slightly divergent religious ideas and creeds from the trading elements and their spiritual guides of India. In a tomb at Ur was

^{117.} *Hibbert Lectures* (1887, published in 1900), p. 137. I.H.Q., I, p. 606.
Vide supra, p. 299.

^{118.} Finegan, p. 19.

^{119.} Marshall, I, Preface, p. vi.

^{120.} Childe, W.H.H., pp. 86-87

unearthed a small figurine of a squatting monkey—apparently a prototype of Hanuman—which is comparable to similar figures, unearthed at Mohenjo-daro.¹²¹ Since the monkey is a typical Indian animal in the ancient civilized world and since it could scarcely have been figured except as a sacred animal, it is possible to assume that the West borrowed some of its religious ideas from India as early as the Bronze Age.

That India must have also imbibed a number of religious ideas and mythical tales about divinities through a similar process is also equally probable. Thus, if we find that India contributed some new or advanced ideas in the field of religion and mythology in the ancient civilized world, it is also true that India borrowed others from that world.

Another intriguing feature of the civilization is presented by what is known as “the Great Granary of Harappa”, which consists of two large buildings, that are separated from each other by a distance of 17 feet. Each of these buildings contains half a dozen large halls, each hall being separated from the adjacent ones by a distance of about $5\frac{1}{2}$ feet. Each of these large halls is 17 feet broad and about thrice as much long. Since the upper portions of these buildings have totally disappeared, the existing portions near the base have the appearance of “parallel walls”¹²² so that these buildings themselves are often described by archaeologists as the “Parallel Walls”. Since their construction resembles that of some large granaries in Crete and other countries, they have also been described as the “Great Granaries” or the “Great Granary” of Harappa—undoubtedly, with a number of arguments in favour of this description. This Great Granary, which measures about 150 feet by 56 feet, need not necessarily be a Royal Granary, and it may have well belonged to an oligarchical institute such as the one envisaged above. It may have been a store-house of an oligarchical state, from which the civil and military officials of the state received a part or the whole of their payment in kind, and of which the surplus was used in times of scarcity and famine, even for the use of the general populace and the workers. Indeed, it is difficult to imagine that it could have served the needs only of the Royal Family, or even of the oligarchical “great households”. It is more probable that this represents something like a state granary, on which depended the administrative and executive staff of that state, including the warriors, the scribes, the priests etc.

121. Finegan, p. 10.

122. S. K. Dikshit, *Sindhu nadi-varil Samskriti* (in Marathi, 1946 March), p. 24

Disposal of the Dead : Cremation

Another important aspect witnessed at Harappa concerns the systems of the disposal of the dead, prevalent in that locality. Since cremation forms the most important of these systems, and since this form of the disposal of the dead became the most current in the "Hindu" India, that is, since we obtain here the earliest example of cremation in a country, where it became the most popular method of the disposal of the dead, the question of cremation in Harappa assumes an unusual importance, so that it needs be treated at some length, and in its proper context. Since cremation was current not only among the people of India, speaking Sanskritic tongues, but also among the Homeric Greeks, the question, whether this is in origin an "Aryan" (correctly, "Indo-European") institution or not, becomes very interesting. The answer to it, if clear, may have a bearing on another question as to whether these "Indo-Europeans" had anything to do with the authors of the Indus civilization or not.

There is also a much-mooted question (or, perhaps, a question not so much mooted today as it was formerly), as to whether it was in the late Neolithic Age or it was in the beginning of the "Copper and Bronze Age", that the practice of cremation came into existence.¹²³ It is well-known that the megalithic monuments of Great Britain and Denmark point to a highly developed state of Neolithic economy. A look at those monuments will probably convince the spectator that the neolithic man, obsessed as he was by his "spiritual" notion about the life after death, could not have continued building such monuments for funerary purposes in all countries, including those where tremendous growth of agricultural production had enabled his race to multiply to enormous dimensions (of course, *vis-a-vis* the potentialities of neolithic economy). It is just possible, therefore—and this is supported by archaeological evidence—that it is in the Neolithic Age itself, that in some countries he found it advisable to discontinue the practice of building up megalithic monuments, at least in later days, if for nothing else, then, at any rate, for the sake of preserving himself. It is authoritatively stated that "cremated remains have recently been found in Belgium in a neolithic settlement."¹²⁴ It is also stated that "it (= cremation) appears almost (though not quite) at the beginning of the lake-dwelling occupation of the Alpine region, and is also characteristic of the painted-ware culture in Ukraine."¹²⁵

^{123.} E. B. (14), II, p. 251.

^{124.} Ibid.

^{125.} CAH, I, p. 110.

A former popular view, noticing the prevalence of cremation among the modern Hindus and the Homeric Greeks, concluded that it was an Aryan custom. Prof. G. Sergi observed: "Burial was the method of disposing the dead followed by all the Mediterranean peoples during the Neolithic epoch, and the same custom obtained in Greece, and was continued without interruption at least until the Homeric period . . . In the island of Crete, Evans and Halbherr, who discovered many tombs of the Mycenaean epoch and others of different periods, found burial to be the invariable custom without any sign of cremation, either partial or total. Apparently, then, the first notice of cremation occurs in Homer: It is described with grim vividness, especially in the obsequies of Patroclus (*Iliad*, xxiii. 110f.) . . . He makes Nestor say that it is necessary to burn the bodies of those who died in battle in order that bones might be carried back to their native land to the sons of the dead. (*Iliad*, vii. 331f.)."¹²⁶ But, it can be easily conceded, this explanation is far from satisfactory and does not offer any clue to the cremation of those that did not die in the battle-field.

Prof. Sergi adds: "The change from burial to cremation must already have taken place in the Homeric age, just as it had previously been made in Central, and, in part, in Southern Europe. It was then introduced into Greece as it had been into Italy, and very probably by the same race, who were afterwards known under the name of Aryan. . . . At the time of Homeric rhapsodies, cremation must have been in use quite as much as burial. In succeeding epochs, both methods were employed, as may be gathered from Greek authors, who attest the existence now of the one custom and now of the other."¹²⁷ Another view about the origin of this custom is expressed by Prof. Munro, who says: ". . . the custom of cremating the dead . . . appears to have originated in Eastern lands, and to have spread westwards, reaching the British Isles towards the close of the Stone Age (of Britain)."¹²⁸

A recent authoritative pronouncement on this subject has been made by Prof. V. Gordon Childe in the following words: "Meanwhile, a third method of disposal of the dead—cremation—had enjoyed a wide vogue, at least in Europe. Practised already by neolithic societies in the British Isles, Brittany, Switzerland and Central Germany, and perhaps also in Greece, Syria and Palestine, cremation became the favourite burial method in the Middle-Late Bronze Age (from 1400 B.C.), and in Spain and Upper Italy, too,

¹²⁶ ERE, IV, p. 472.i-ii.

¹²⁷ Ibid.

¹²⁸ Ibid., IV, p. 466.i.

by the Early Iron Age (from 1000 B.C.): It was practised also at Troy on the Dardanelles, Carchemish on the Euphrates, and occasionally in Crete and Greece, between 1400 and 1100 B.C. In the first millennium B.C. both cremation and inhumation were practised in most Greek and Italic cities; the Celts in Western Europe were generally inhumed, while the Teutons in the north still cremated.¹²⁰ That author then goes on to prove how it was not an "Aryan" rite, neither confined to the "Aryans" nor prevalent among all, or even most of the "Aryans". (By his "Aryans", we are to understand the "Indo-Europeans" and not the eastern branch of the latter, namely, the "Indo-Iranians".)

Whatever that be, the practice of cremation, or of burial of cremated remains etc., appears to have been current in a number of countries, at least in the "Copper and Bronze Age". What could not be preserved had to be ceremoniously, sanctimoniously, or sacrificially destroyed. And yet, the system of burial could not often be totally discarded. Thus, often there was a compromise between the two systems of burial and cremation. They buried the cremated remains of the dead. And as custom dies hard, in many countries, especially those in the backwaters of civilization, the system of burial and even of erecting megalithic monuments continued during the Bronze Age. What this system of burial, with sacredness attached to it, has meant in the long run in some populous countries like China is too well-known to expatiate upon.

In India, we see the existence of numerous practices in matters of burial, especially in the South. We also see that in the North—i.e., at Harappa, etc.—more than one practice was current in the field of cremation. At Harappa, for instance, Pt. M. S. Vats unearthed "more than 120 burial-pots from the upper stratum, and beneath them a series of entirely different earth-burials", from a "culvert-like structure" and other places in the cemetery. The excavator goes on to inform us that in the case of the earth-burials, "the corpses, entire or fractional, were laid in graves in the ground accompanied as a rule but not invariably by funeral pottery consisting of water-pots, bowls, offerings' dishes (offering-dishes), or plates, saucers, flat covers, flasks, round vases etc."¹³⁰ In the pot-burials, the pots contained human remains, placed directly at the bottom, and usually filling no more than the lower half thereof. These pots were of various shapes and sizes, ranging in height from about 10 inches to about

^{120.} Childe, P.A., pp. 81-82

^{130.} Vats, EH., I. p. 204.

2 feet. "All burial pots were originally covered or stoppered with inverted bowls, vases, handled lids, pot-sherds or bricks, and occasionally the lid was further secured by covering it with a sherd."¹³¹ Here we possess clear evidence as to the "complete burials" being gradually supplanted by "fractional (or partial) burials." At Nal, both the practices—of "complete" and "fractional" (or partial) burials—were current in one and the same period.¹³² Thus, it would be permissible to hold that in the ancient civilized regions, in and about the Indus Valley, the beginning of the system of cremation is to be placed in the Bronze Age—or in the so-called "Chalcolithic Age"—rather than in the Neolithic Age.

Lastly, we may note that it is characteristic of the Indus Valley civilization that cemeteries here do not yield that sort of rich material, which is to be found in the Bronze Age cemeteries of other countries. Gold and silver have been found in the Indus Valley sites in "living quarters" and not in the cemeteries, and this may not be *altogether* due to the fact noticed above that probably here there were no all-powerful sovereigns of the Bronze Age. This custom rather bespeaks a different system of philosophy, a philosophy of rebirth or regeneration ("punar-janma"), that is inseparably connected with that of "karma": This philosophy made it not only unnecessary, but even preposterous or improper in the eyes of its adherents to preserve intact the life-less remains of flesh and bones, or to enrich the cemeteries with rich furniture. This philosophy was, moreover, quite in keeping with the social structure of the Indus Valley, based on the caste-system. The philosophy of regeneration and "karma" is, indeed, a peculiar product of the caste-system. It is peculiar to India.

Similarities and Distinctions in Bronze Age Culture Types

We have indicated above how the "Copper and Bronze Age" civilization spread in all probability from the Indus Valley to the Ganga-Jamuna doab. In this connection, we also noticed the similarity revealed by the copper axes found in these regions, on the one hand, and those found in the Gungeria hoard, on the other. Archaeologists are at times wont to overemphasize similarities existing between various products of the same age, belonging to various localities; but even in such cases, their typological likeness cannot be denied. In the case of the Gungeria hoard, one savant goes as far as to state that the "specimens with the most widely splayed

131. Vats, EH., I, p. 204f.

132. *Revealing India's Past*, p. 103.

edge (in that hoard), closely resemble an Irish bronze in the National Museum of Ireland; while other examples recall Babylonian, Egyptian, and even Peruvian patterns. On the whole, they resemble Irish specimens more closely than those of any other country."¹³³ But if we must guard ourselves against drawing from such similarities any erroneous conclusions, regarding the exact dates of the objects in question, or regarding anything like a direct intercourse, etc., between two very distant regions like India and Ireland, there is little that should stand against further research in the direction of finding out connecting links between such culture-types. Indeed, it has already been noticed by a number of scholars that over vast areas, where Bronze Age culture existed, a striking similarity is to be observed between various culture-products, implements, weapons or utensils. And yet it is to be admitted that never before, neither in the Palaeolithic Age, nor in the Neolithic Age, were so many different types and varieties in their products observable. Indeed, the following observation by an eminent authority may not be an exaggerated statement, in the case of certain orthodox weapons, though at first sight it is likely to appear as such: "As regards tools and weapons, the bronze age exhibits far more types than are met with during the much longer period in which iron and steel have been in use. This is especially true for axes, spearheads, daggers, and swords."¹³⁴

133. IGI. (1900), II, 97.

134. E.B. (14), II, p. 247f.

CHAPTER XIV

BRONZE AGE IN EURASIA

WITH every new discovery, the world is shrinking and the tempo of the progress of civilization is increasing. We have noticed above how the two important discoveries of the Neolithic Age accelerated this progress. With the ushering in of the Copper Age, a number of subsidiary, but important, inventions changed the whole complex of human civilization and brought distant parts of the world into closer contact with each other. The most important of such subsidiary inventions was that of the wheel, the use of which considerably increased the potentialities of transport and carriage, that at once resulted in a tremendous growth of trade over distant countries. We find the complex civilization of the metal age spreading from one country to another within (comparatively) a very brief time. In many of these ancient civilized countries, the introduction of the Copper and Bronze Age created distinct culture types, which, despite certain important features and fundamental characteristics that they shared in common, developed local peculiarities, marking them out from each other and forming the basis of the future divergences that were to develop in those regions. Such regions formed so many centres of the civilization of the early metal age, and were generally to be found in the river valley, or in the plains, that were not very far removed from the metal-producing districts. Henceforth, the development of human civilization depended to a large extent on the availability of important metals in their vicinity in various countries. The most important of such centres during the Copper and Bronze Age, besides those noted in the last three chapters, included the countries in and around the eastern Mediterranean, the U.S.S.R. (comprising the Caucasus districts, the steppe regions etc.), the Danubian basin and last, but not the least, the northern plains of China. We shall take up these regions in this chapter, one after another.

Ægean Civilization of the Bronze Age

The Copper and Bronze Age civilization of the Ægean world is generally and probably correctly known as the Ægean civilization; but since its most important centre lay in the regions around the famous labyrinthine palace, that is attributed to the mythical

king Minos and is situate at Knossos (or Cnossus) in Crete, it is often popularly called "Cretan" or "Minoan" civilization. The Minoan culture, properly so-called, considerably influenced, and was even responsible in some measure for the rise of the lesser "cultures", including the Cycladic culture, the Helladic culture, the Thessalian culture etc. All these should, therefore, be designated by the more comprehensive term "the East Mediterranean civilization", or, to avoid this awkward expression, by the simpler term "the Ægean civilization."

That the Cretan civilization of the "Copper and Bronze Age" overlaid a more ancient culture, belonging to the soil, has now become very clear; for, in the very heart of Crete, Franchet and other scholars have exhumed mesolithic vestiges, comprising pigmy flakes of obsidian (brought across the seas), chipped quartzite picks etc. At Knossos (or Cnossus) itself, vestiges of one of the largest neolithic settlements have come to light. It consisted of a number of small 'fainily-rooms'. each in all probability managed and maintained by a woman; and all these were joined together by a common corridor, into which these rooms opened out, and also probably by a common roof over them all, signifying a unified control by some head of a matriarchal clan.

The beginning of the Copper Age is marked here by the culture of the Early Minoan I,¹ miscalled here the "sub-neolithic" period. The finds of this period demonstrate firm trade relations with Egypt, which must have provided for this insular civilization the initial "driving" influence to the higher form of the "Copper and Bronze Age" culture. The rapid development of the Minoan culture is revealed by the fact that already in the Early Minoan II (roughly contemporaneous with the VIth Dynasty of Egypt), houses had come to be erected in two or even three stories. In exchange of agricultural and other products of Egypt, this island also sent corn, wine, timber etc. "More important were some small copper mines and the inurex, whose juice produced that purple dye which stirred men's admiration in the early world."² The earliest Minoan earthenware and beautifully wrought stone vases were obviously copied from those of the time of the Ist Dynasty of the Nile valley. From the same source they borrowed other elements of culture, including the use of seals, sistruim, some typical ornaments etc.³ In

1. The stratigraphical evidence divides Ægean history into three main periods, viz. the Early Minoan, the Middle Minoan and the Late Minoan, each of which is further subdivided into three or more epochs. See especially Sir Arthur J. Evans, *The Palace of Minos at Cnossos*, Vols. I-V. Also read M.G. pp. 23f., 226f.

2. Weech, *World History*, p. 32.

3. Childe, DEC, p. 26. CH, I, p. 307; 175.

the art of manufacturing exquisite pottery and other arts, they improved upon what they had borrowed, and later on even passed on to the original source, Egypt, finer products than those found in that land. During the Early Minoan I, painted decoration (often with a glaze) in "dark on light" replaces for the most part the incised decoration of the Neolithic Age, which, however, continued to survive till the end of the Early Minoan III period. By the latter period, lustrous glaze in "light on dark", and afterwards polychrome technique are found in vogue.

The earliest indications of a monumental construction at Knossos (or Cnossus) are to be met with in the Early Minoan III, but the actual vestiges of the Minoan Palace proper are first encountered only in the beginning of the Middle Minoan I. During the latter epoch, polychrome pottery with the earlier geometric designs in "dark on light" continue to be in vogue. It is replaced in the Middle Minoan II by similar pottery with "light on dark". The elaborate sewage system, together with its drain-pipes, belongs to the Middle Minoan I, but it was further developed during the Middle Minoan II. The latter witnessed the flowering of a number of arts, including considerable inlay-work in faience etc. The delightful fresco-painting, perhaps borrowed from Egypt, but developed in this island to almost unparalleled heights, is witnessed here for the first time during this epoch. A variety of animal, human and naturalistic (floral and plant) designs are observable in these frescoes, just as geometric and naturalistic patterns are to be seen in contemporary pottery. The polychrome pigments of the Middle Minoan pottery are generally done on the foundation of a glaze ground. The Knossian potters manufactured, with the aid of their quick-rotation wheels, "exquisite cups as thin and delicate as modern porcelain tea-cups."⁴ The Kamares ware, as this pottery is called, was perhaps "the most beautiful ware to be had in the East"^{4a} during the Bronze Age. "In the Middle Minoan period, the intercourse between Crete and Egypt so far revealed is clear and reciprocal. At Kahun were found Middle Minoan potsherds in a XIIth Dynasty context (time of Senusret II), and at Abydos a tomb of the latter half of the XIIth Dynasty contained a Middle Minoan II polychrome vase."⁵ It is during the Middle Minoan III that we come across at Knossos evidence of columnar architecture in wood, evidently imitating in wood what was found in Egypt in stone. To the Middle Minoan II and III belong some Egyptian statuettes and an alabaster

4. Breasted, *Ancient Times*, p. 230.

4a. Ibid.

5. CAII., I, p. 175; Childe, DEC. (5th ed., 1950), pp. 26-27.

lid, that were apparently brought to Knossos in exchange of Cretan wares.

Pottery with naturalistic (floral and plant) designs, continued to be in vogue as late as the Late Minoan III; but in later days, these designs become at times somewhat highly elaborate and even complicated. The thin exquisite Kamares ware belonged exclusively to the palaces like those of Knossos, Phaestos (or Phaistos) etc., but was not to be met with in the countryside. The painted vases of the Late Minoan I and II have been exhumed from the tombs and houses of the XVIIIth Dynasty, found at Sakkara and Gurob. Numerous potsherds of the Late Minoan III have been found in the ruins of Tell el Amarna, the city of Akhenaton (or Amenhotep IV), which existed only for a brief period from B.C. 1375 to 1350.⁶ "In Egypt itself Kefti (or Keftiu) tributaries, bearing vases of Aegean form, and themselves similar in fashion of dress and arrangement of hair to figures on Cretan frescoes and gems of Period III (viz. Late Minoan), are depicted under this (viz. the XVIIIth) and the succeeding dynasties (e.g. in Rekhmara tomb at Thebes)."⁷

If in the foregoing pages, a somewhat over-simplified account of the Cretan civilization has been presented, this is on account of the fact that it is based mainly on the stratigraphy observable only at one centre of this civilization, viz. the labyrinthine Palace of "Minos" at Knossos. We can, however, see that here the so-called "subneolithic" culture, that yielded copper celts etc., corresponds to the predynastic culture of Egypt and that the beginning of the "Palace culture" of Knossos marks the beginning of the dynastic epoch of Crete, comparable to similar epochs witnessed in Egypt and Mesopotamia. Indeed, such a centralization of power could not come into existence without the introduction of the Copper Age in any of these localities. It is quite possible that the forebears of the Cretan kings were originally no more than pirates, who waylaid the traders on the high seas; but it must have been not long after that they learnt the advantages of controlling and regulating the commerce on the seas. It was they who were mainly instrumental in allowing and maintaining a healthy development of trade throughout the eastern Mediterranean. And with the wealth that they thus acquired and to which they added by the control of copper mines in Crete and in neighbouring islands, they erected for themselves magnificent palaces like those of Cnossus (Knossos), Hagia Triada (or Hagia Triadha), Phaestos (Phaistos), Gourina, Palaikastro, Mallia, Tylissos etc. In these palaces lived powerful

6. F.B. (14), VI p. 679, ii

7. Ibid. I, p. 214, i.

priest-kings, devoted to the cult of the Mother Goddess, strong enough to protect themselves on the seas, and therefore, needing no protection in the form of fortifications. Inside and in the vicinity of their palace, these kings kept a large number of retinue, many of them skilled in various arts and crafts. The peace that the latter were ensured, and the protection that the traders were afforded, enabled them to develop those arts and crafts and exchange those products for those of Egypt and other countries. The most important of these arts was to be witnessed in the frescoes with which they beautified the walls of their palace. In these frescoes, the Cretan artists appear to take delight especially "in representing lilies and reeds, bulls and wild goats, dolphins and flying-fish, ladies adorned in rich stuffs and jewellery."⁸ The Cretan artist is, undoubtedly, among the few artists whose art breathes movement and life. "We detect the dawn of that spirit which afterwards animated Hellenic art."⁹ With the scenes of everyday life depicted in these frescoes, the Palace of Minos at Knossos resembled in some measure the art-galleries of today. But vestiges of other arts and crafts, especially those of pottery, seal-making, lapidary work etc., also evince a high artistic excellence especially during the Middle Minoan period and the earlier days of the Late Minoan period.

Prof. V. Gordon Childe plausibly holds that the copper deposits of eastern Crete were "probably exploited in Early Minoan times"¹⁰ In the northern islands lay other deposits, at Siphos and Seriphos, which did not probably take long to be exploited. In fact, it appears to us that the original centre of the power of the Cretan potentate lay in the south, nearer to Egypt, because of the initial inspiration that the island received from those quarters, but that not very long after, it was thought advisable to shift it more and more towards the north, nearer the copper mines. Or, may be, independent chieftains rose almost simultaneously in various localities in and near the island of Crete, and built various palaces mentioned above—the chieftain of one palace, conquering that of another at one time, and being conquered by that of a third at some other time. Prof. Weech states: "Phaistos (Phaestos) in the south and Cnossos (Knossos) in the north were probably independent cities at first; but, as the former lost power, it may have become subject to its northern neighbour."¹¹

The maritime commerce of the island of Crete did not extend

8. Glotz, p. 42.

9. E. B. (14), I, p. 213. ii.

10. Childe, DEC., p. 33.

11. Weech, *World History*, p. 32.

only in the southern direction, but it extended in all directions. As early as the Early Minoan II, we find commercial contact established between Crete, on the one hand, and South Russia and Transcaucasia, on the other: This is proved by the find of some curious "axe-adzes", (characteristic of the Minoan culture) in the latter regions. Indeed, the "movement which initiated the Minoan bronze age culture in Crete and the Cyclades does not seem to have been confined to the *Ægean*. . . . The implements and the pottery, both red-ware and painted, have much in common, as the very names of these styles imply, with Asia Minor and Syria and with that far-easterly culture which penetrated these regions early."¹² The early Cretan or Minoan culture of the Copper Age must have naturally taken some time to spread to other islands of the *Ægean* sea and elsewhere in the eastern Mediterranean; but in certain localities, this difference of time seems to be immaterial. Thus, in the Hellas, where this happens, the earliest Copper Age culture "is called Early Helladic to signify its connection and parallelism with Early Minoan and Early Cycladic civilization."¹³

The island of Cyprus, the home of copper mines, also witnessed parallel developments ever since the Neolithic Age, and has, during the Copper and Bronze Age, stratigraphical periods closely comparable to the Early, Middle and Late Minoan epochs. This connection between these two Mediterranean islands, evidenced by archaeological finds especially during the latter half of the Copper and Bronze Age, is only to be expected, as we find that maritime trade relations existed between Crete and the coast of Syria-Palestine, from a very early date, so that Cyprus must have provided a very good halting place for the mariners and traders going to and fro. A close connection between the two islands is shown by the predominance of the worship of the Mother Goddess, the almost simultaneous origin in the two islands of the linear script (about which we shall speak later) and many other factors.

During the "Copper and Bronze Age", the Cretans made vessels of copper, bronze and other metals, with the same masterful skill that they applied to the making of pottery. As Prof. Glotz points out, the *Ægean* smith gives proof of his great skill in craftsmanship and execution of tools, weapons and utensils already in

12. C.M., I, n. 103.

13. Childe, D.E.C., p. 71. The "Helladic culture" spread over the so called "Pelasgian" soil, that included the regions from Mt. Othrys to Cape Malea, Nisaia, the islet Minoa, Salamis, Athens, Sparta, Eleusis etc. The term "Cycladic" is obviously derived from the islands of the Cyclades.

the Copper Age. He adds: "The Cretans were masters in bronze-work."¹⁴ Elsewhere he observes: "Thus the technical skill of the Cretans could express conceptions of beauty in every metal."¹⁵ Prof. Breasted asserts that the "Cretan sculptor in ivory....as well as the goldsmith and worker in bronze wrought masterpieces which remain today among the world's greatest works of art."¹⁶ A great number of arrow-heads, daggers and swords, made of bronze, were exhumed in the smiths' quarters of the Palace of Minos at Knossos and at other places. One of the largest swords of the Bronze Age was unearthed in the Palace of Mallia, in strata belonging to the very beginning of the Middle Minoan period. "It is a flat blade, 79 cm. long, with a broad base and a sharp point; there is a gold and crystal hilt, but no ornament on the blade."¹⁷ In addition to these objects, the Cretan smith also cast excellent bronze statuettes, huge copper drain-pipes, etc.

The palaces of Phaestos, Knossos, Gournia, Palaikastro, Pseira, Zakro, Thera etc., appear to have fallen into ruins, some of them simultaneously with each other and some repeatedly. Different causes such as (a) earthquakes (Sir Arthur Evans), (b) revolts of the plebians against the local priest-kings (Evans), (c) invasions of alien races (Dr. Glotz etc.), (d) mutual conquests and depradations etc., have been assigned to these disasters; and in truth, if one of these was the cause of one disaster at one place, another might have been of some other at another place. As seen above, after each successive disaster, the palace of Knossos rose higher and in more glorious forms, until it reached its zenith in the Middle Minoan II, whereafter a certain decline is perceptible. Then came, at the end of the Late Minoan III, a great disaster over this palace, which laid it low for ever in its ruins consisting of timber, bricks and stones, out of which it was built. Almost simultaneously with this, a number of other palaces of the Cretan civilization were overtaken by a sudden disaster. At Knossos probably stood erect for some centuries the walls of the labyrinthine chambers and passages, with its frescoes of bulls; and these gave birth to the Grecian myths relating to the king Minos, the Minotaur (having a half-bull half-man form), and the Labyrinth. In these chambers, the king of the Knossian palace must have housed, not the Minotaur as the myth narrates, but his officials, scribes, warriors and servants, his stores, workshops and armaments, his queen and the slave-girls, himself dwelling in one of its most spacious chambers.

14. Glotz, p. 181.

16. Breasted, *Ancient Times*, p. 234.

15. Ibid., p. 184.

17. E.B. (14), IV, p. 241.

By the archaeologist's spade, now "enough is known to show that Crete had an organized government, which controlled the island and gathered taxes in kind from its inhabitants."¹⁸ It was not in order to create confusion (as the myth asserts), but rather to create order that the "Labyrinth" appears to have been built! But, no doubt, confusion must have reigned after it fell into ruins at the end of the Late Minoan III, simultaneously with similar other palaces throughout the Aegean world. This final disaster must have been due almost certainly to the invasion of an alien people, most probably the so-called "Aryans", or the "Indo-Europeans", as we shall see in a succeeding chapter. The Minoan culture continued to flourish in its decadent stage almost up to the end of the 15th century B.C. But though overtaken by such a disaster, the artistic traditions of this culture appear to have continued in the history of civilization and have not become totally extinct. Indeed, the Late Minoan art is comparable in many ways to the Grecian art of the sixth and fifth centuries B.C.

Mycenaean Culture of the Bronze Age

This continuity of artistic tradition was maintained mainly by a number of subsidiary centres of the "East Mediterranean" or Aegean Civilization, the most important of which, in this respect, was to be found in the area of Mycenae and Tiryns. The Mycenaean culture, as the culture of this area is called, is in the main closely related to the Egyptian civilization of the XVIIIth, XIXth and XXth Dynasties and to the Cretan culture of the Late Minoan period, though its beginning must be traced to a much earlier period. "At Mycenae itself several Egyptian objects have been brought to light... At the same time vases of the typical Mycenaean style... have been found in quantities in Egypt, especially in the ruins of Ikhmilon's palace at Tell el-Amarna,... Further, in the tomb of Ramses III (XXth Dynasty) stirrup vases of the typical Mycenaean shape in gold and copper are represented."¹⁹ Closer affinities naturally exist with the ancient Crete. "Something of the same life prevailed, but it did not reach the same artistic level."²⁰ The later frescoes of Phaestos and Knossos have a very close relation with those of Mycenae and Tiryns: They are in the same style and are almost contemporary. It is, therefore, often supposed

18 Weech, *World History*, pp. 33-34.

19 CAH., I, p. 176 f.

20. Weech, *World History*, pp. 36-37.

came poorer and poorer during the late 14th and 13th centuries. The grave goods became cheap and nasty. Art declined. Egyptian imports, so common in the early fourteenth century, are missing in the thirteenth. Mycenaean manufactures are proportionately rare in Egypt and Syria....The luxury industries of the nobles' courts consequently became obsolete. Cheap iron swords replaced costly bronze rapiers. What were left of the Mycenaean cities relapsed into almost self-sufficing villages."³¹ The last days of the Mycenaean culture thus witnessed the beginning of the Iron Age.

Trojan Culture

About the end of the Minoan period, the Ægean civilization had already spread beyond the islands of the Mediterranean Sea, to such outposts as Mycenae, Tiryns, Troy (or Hissarlik) etc. Indeed, like the rest of these Bronze Age sites, Troy, also called Ilium (from which is derived the name *Iliad*), was pre-eminently a city of the Heroic Age of Greece; but it has been immortalized over all others, perhaps, not without a historical reason. The walled town of Troy was one of the first big cities to be conquered by the western branch of the iron-using "Indo-European" (viz., the forebears of the Greeks) in the vicinity of the Mediterranean Sea; and it is, perhaps, for this reason that the memories of this city survived not only the destruction of that city but also that of many others.

The site of ancient Troy has been occupied by no less than nine successive "cities" (or strata of occupation), laid bare by the excavator's spade in a mound in the vicinity of the modern village of Hissarlik (henceforth H.) on the Hellespont. The earliest of these cities, named H. I. generally held to belong to the (late) Neolithic Age, was undoubtedly acquainted with copper. It had two-roomed tenements, betraying a break from the matriarchal units of neolithic times. According to Prof. Milojcie and Prof. Childe, a massive stone-wall already surrounded this city. Its successor, H. II, has also yielded some undoubted specimens of bronze, containing about 10 per cent tin.³² These factors make it quite probable in our view that H. I really belonged to the Copper Age. H. II had "well-planned fortifications of baked bricks, resting on the foundations of wrought stone....When the second city of Troy (H. II) fell, her inhabitants left behind them bronze moulds, silver jars, and golden diadems and earrings, and cups to bear witness of

31. Childe, WHII, pp. 194-195.

32. E.B. (14), IV, p. 240 ii.

their wealth."³³ The stone ramparts of H. II, (enclosing over one and half acres), the use of bronze and the fact that it was burnt were probably responsible for misleading the first excavator of this site, Dr. Schliemann, into believing that H. II was the walled city of Troy destroyed in the Trojan War. But the subsequent investigations of Prof. E. Dorpfeld (a disciple of Dr. Schliemann), Prof. Milojcic and others have proved that it is H. VI or rather H. VIIa, and not H. II, that should be identified with the "Troy of the Trojan War." The Cyclopean walls of this city have actually suffered several destructions and restorations until the day of its final catastrophe.³⁴ On archaeological grounds, H. II is to be dated, according to the writers of Cambridge Ancient History, about 2000 B.C., whereas the final destruction of Troy (viz., that of H. VI) took place "not earlier than the twelfth century" B.C.³⁵ The area of H. VI, enclosed by the stone wall, is about four acres, i.e., much bigger than that of H. II. "The dead were now cremated, their ashes enclosed in urns of Minyan ware, and buried in a cemetery outside the city walls." The horse was introduced here for the first time in this city.

It is possible that the Trojan War may not have really taken place even in the sense that some Hellenic tribes besieged and destroyed Troy, that the *Iliad* was originally composed to glorify that event, and that it was later on expanded to its present form with the addition of mythological and legendary lore—as is often believed by a number of historians. None the less, we may legitimately speak of the "Troy of the Trojan war," adverting by this expression to the Troy, described in the *Iliad*. Archaeologically, this description pertains to a period (about the 12th century B.C.), when the existence of Hissarlik VI or VIIa was not yet forgotten; and it was composed by a poet, who did not probably live long after the destruction of it. It belongs to about the end of the Bronze Age and the beginning of the Iron Age. Naturally bronze (often rendered as "brass" in the popular translations of the *Iliad*) appears to have been the most popular metal for the weapons of war, at the time of the composition of the *Iliad*. We thus learn of how "loud rang the brass" during fighting, and we are told of "the brass-clad Greeks".³⁶ That copper and bronze were the commonest of all metals may perhaps also be proved by the fact that

33. Weech, *World History*, pp. 37-38

34. E.B. (14). XXII, p. 503 i

35. CAH I, p. 103, 109 Prof V Gordon Childe dates H II to about 2500 to 2200 B.C. and the destruction of H VIIa to 1300 to 1100 B.C. See Childe, DEC. (5th edn 1950), p. 36 f.

36. *Iliad* of Homer (Everyman's Library), VIII, p. 117 f. (lines 275 f.).

any worker in metals is called in the *Iliad* "a copper-smith", or *chalkeus*. In the same work, Hector is made to say the following, which suffices to prove that it is the past glories of the Troy of the Bronze Age that the author appears to have had in view:

" . . . the wealth of Troy,
Its brass, its gold, were once the common theme
Of ev'ry tongue."³⁷

Lastly, as Prof. Gordon Childe observes: "The Trojan war described in 'Homer's' epics sounds like a venture in imperialism."³⁸

The End of the Bronze Age

That huge unheavals took place within a brief period of a couple of centuries, after c.1,200 B.C., in the eastern half of the Mediterranean and in the coastal region around that sea has been noticed by a number of scholars, some of whom have rightly connected them with the advent of the Iron Age, or at any rate with the destruction of the civilization of the Bronze Age. Thus one authority says: "Towards the beginning of the 12th century, the traditional date for the Trojan War, and when Egypt was vexed by the Peoples of the Sea, signs of degeneration again appear and soon after came a final catastrophe, probably about 1100 B.C. Mycenae and Tiryns went in flames. The palace of Cnossos was once more destroyed and never rebuilt or re inhabited. Iron took the place of bronze."³⁹ Another authority refers to the same events in the following manner: "Troy, according to tradition, was taken in the 12th century. Then, as the use of iron spread, the Iron Age began, and as the contemporary Egyptian records say, 'the Isles were restless . . .' Then Mycenae fell and the palace and houses were burnt."⁴⁰

Origin of the Alphabet

Before proceeding further with the subject of the destruction of the "Eastern Mediterranean" or *Aegean* civilization of the Bronze Age at the hands of the warriors of the Iron Age, whom we have identified with the "Indo-Europeans" in a succeeding chapter, and before turning our attention to other Eurasian civilizations of the

37. *Iliad*, XVIII, quoted in M.G., p. 231.

38. Childe, WHH, p. 165.

39. E.B. (14), I, p. 216.i.

40. Ibid., XVI, p. 38.ii.

Bronze Age, we shall interest ourselves in the subject connected with the origin of the modern scripts, as the latter appears to be connected with the regions and the approximate period, with which we have been dealing in these pages. We have shown in a previous chapter how the economy of the Copper Age resulted in the origin of writing. Comparable to that event, we come across, by the end of the Bronze Age, or, perhaps, in the beginning of the Iron Age, a remarkable development in the cultural history of mankind. This development is to be witnessed in an almost simultaneous rise of alphabetic or near-alphabetic scripts in a number of localities.

It is agreed by a number of experts in this line that a hieroglyphic Hittite script is allied to the pseudo-hieroglyphic script of Byblos (Syria), the linear scripts of the islands of Cyprus and Crete and some scripts of Anatolia. Which began earlier than the others—indeed, which can in reality be called a semi-alphabetic script—it is very difficult to say. The idea (based on a phonetic valuation of letters) is to be already met with in the hieroglyphic script of Egypt. The semi-alphabetic or alphabetic script was undoubtedly developed owing to the exigencies of a brisk and busy trade in and around the Eastern Mediterranean. One of the most essential characteristics of the alphabetic script appears to be its linear appearance. Now, such a script is to be already met with in the late Bronze Age in both the island of Cyprus and the island of Crete. It is difficult to state with certainty which island owed the script to the other. On the other hand these scripts of Byblos, Cyprus, Crete etc., resemble apparently closely the linear script of the post-Harappa layers and the early Indian alphabetic scripts (viz. the Brahmi and the Kharoshthi) in certain features. It is important to remember that excepting for a small number of inscriptions of the two islands, Cyprus and Crete, the rest of early alphabetic or semi-alphabetic inscriptions have to be relegated almost without any exception to the Iron Age. The recently deciphered script of Byblos dates, in the opinion of its decipherer, Prof. Dhorme, since the time of Amenophis IV (or Amenhotep IV, alias Akhnaton) (i.e., c.1375 B.C.), and it was used to write "pure Phoenician".⁴¹ Another scholar, Maurice Dunald, also "considers the syllabic pseudo-hieroglyphic script of Byblos as the proto-type of the alphabet".⁴² We also learn that the Cypro-Minoan script—through which Cyprian script is generally traced to the Minoan—"was in use in Cyprus

⁴¹ D. Diringer, *The Alphabet*, p. 164 f. See pp. 159 f., figs. 82-85.
supra p. 30.]

⁴² Ibid., p. 205. See also p. 163.

from 1400 B.C." to the middle of the 11th century B.C., according to Mr. Dikaios, Curator of the Museum of Cyprus.⁴³ It is, therefore, quite possible that though some linear scripts and near-alphabets may have been invented by the East Mediterranean people of the Bronze Age, the credit for the spread and perhaps for the origin of the real alphabets belongs to the people of the Iron Age such as the Syrians and the Hittites. Thus it is that the "Semitic" and "Indo-European" groups of languages came to be originally associated with the alphabetic scripts.

Our hesitation in one of the foregoing chapters in attributing the post-Harappa culture associated with the Jhukar ware and the disappearance of the Harappa script during that epoch, to the invasion of the "Aryans" (or the eastern branch of the "Indo-Europeans") will now become clear.⁴⁴ We may also point out here that in some of the Jhukar seals, we come across instances of a linear script, which appears to us to be somewhat akin to the Cypriote and Cretan scripts.⁴⁵ The connection of the Aramaic, Phoenician, North Semitic and South Semitic scripts with the Indian alphabetical scripts of the early historical times viz, the Brahmi and the Kharoshthi, envisaged by a number of scholars, and the connection between the most famous traders of the East Mediterranean regions (viz—the Phoenicians) and the ancient Indian traders, known to the Vedic and early classical literature as Panis (Paniks or Vaniks), would now become more explicable. We know that the Phoenician language belonged to the Semitic group of tongues, whereas the Panis were supposed by most of the Indologists as being included among the speakers of the so-called "Aryan" or "Indo-European" group of languages. The apparent inconsistency of these views was not seriously sought to be resolved by any scholar, it being, perhaps, always taken for granted that the traders could have more than one language, or that they might have used one among themselves and another among the people with whom they traded, or that though originally Semitic in language, they could well adopt the more developed "Indo-European" language, or that they understood well the latter tongue, and being regarded as foreigners like the Jews in the Continent, they were despised by the Vedic Aryans. These views become unnecessary hypotheses in the light of the facts given above, for they may

43. Diringer, *The Alphabet*, p. 168.

44. Vide supra, pp. 276-7; 271 f.

45. Vide supra, pp. 39 f., 324-5. Diringer, *The Alphabet*, pp. 73 f., 105 f.; 197 f.; 215 f. etc. for the Cretan and Cypriote scripts. Also see Majumdar p. 5 f.

well have been a mixed "race", different sections speaking differently either Semitic or Indo-European tongues.

Bronze Age in the U.S.S.R.

The Bronze Age culture spread very rapidly to other localities also. "Thus mountains of the Caucasus, Central Asia, the Altai and the Urals became seats of the Bronze Age civilization. From here the use of bronze spread to the steppe and forest regions" of the U.S.S.R.⁴⁶ We also glean the following interesting information about the Bronze Age cemeteries in the U.S.S.R., which we take the liberty of quoting at length: "Numerous tumuli are scattered throughout the Southern Black Sea steppes, which, when excavated, revealed human skeletons dyed in a red colour. During burial, the dead body was covered with ochre or minium (red lead), which later settled in the bones. The dead man's weapons and various household chattels were placed beside him. Sometimes the skeletons of a man and woman were found together in the same burial mound. It is to be presumed that when a man, the head of a family, died, his wife was killed and buried with him. The barrows reveal that there were rich and poor burials, and testify to the incidence of inequality in property status. An example of an especially lavish burial—that of a clan or tribal chief—is the tumulus discovered near the city of Maikop. The mound was about 30 feet high. The main section of the sepulchre contained a skeleton which had been coloured a bright red with minium. The deceased was dressed in clothing ornamented with golden images of bulls, rings, rosettes and also with gold, carnelian and turquoise beads, and other small objects. Gold and silver vessels lay beside him. A canopy had been erected above the body, and was supported on gold and silver tubular piles, decorated with solid gold and silver figures of bulls. The grave contained two other skeletons in special sections: the chieftain's nearest relatives had to die with him."⁴⁷ Another barrow, unearthed at Ulski, which was about 50' high, half as much long and about 20' wide, also contained important Bronze Age finds, including plenty of gold, and undoubtedly contained the grave of a chieftain. "Around it were the skeletons of 180 horses tethered to posts, while remains of fifty more horses were found in the barrow above it."⁴⁸

The finds in these barrows remind us, by their wealth and

46. *A History of the U.S.S.R.*, I, p. 19. Cf. Childe, DEC., p. 139 f.

47. *A History of the U.S.S.R.*, I, p. 20.

48. Childe, P.A., p. 95.

variety, of those of Ur, Mycenae and other "Copper and Bronze Age" sites, with which they are comparable in a number of ways. The South Russian and Caucasian barrows show, for instance, like the cemetery of Ur, that the kings or chieftains of those regions were buried not only with a great amount of royal furniture, but also with their queens and paraphernalia: and the furniture of all these localities included waggons, horses, bulls etc. Recently about a score of Bronze Age *kurgans* (or *kouрганы*, i.e., burial mounds) have been unearthed in the old Georgian province of Trialeti. Most of them were of a huge size, with a height of as much as 5 meters. "Each of these remarkable tombs shelters one body only, certainly that of a chief at whose side there were sometimes placed a four-wheeled car and other rich funeral furniture."⁴⁹ One of the most notable objects here unearthed is a "silver bucket, decorated with gold, entirely covered with embossed ornamentations figuring a great variety of wild animals in a stylized forest."⁵⁰ There are a number of golden goblets, found here, which are embellished "with filigree spirals and granulation, and studded with turquoises and carnelians set *en capuchon*."⁵¹

There is evidence to prove that the common folk were devoted to agriculture and that they domesticated sheep, goats, pigs, cows etc., whom they sacrificed ritually. Besides they hunted "the wild-goat, the ibex, the chamois, the roe-deer, the fallow-deer and the wild boar, whose shapes adorn some of the funerary vessels."⁵² Among some noteworthy characteristics common to the Bronze Age *kurgans* of Kuban, Terek, Donetz etc. may be mentioned the use of flat copper spearheads, stone mace-heads etc. There are numerous indications that the Bronze Age culture of the Kuban valley etc. owed considerably to the Mesopotamian civilization.⁵³ The *kurgans* continued to be in vogue in the Caucasus and South Russia during the Iron Age, enabling us to study the conditions of the end of the Bronze Age and their continuity in the beginning of the Iron Age.

Danubian Culture in the Copper and Bronze Age

As we have observed above, the Copper and Bronze Age civilization spread from one river-valley to another, developing faster in the regions that lay adjacent to the copper mines than in others that did not. One such important centre of the Copper and Bronze

49. JRAS., 1944, p. 26.

50. Ibid.

51. Ibid.

53. Childe, DEC, p. 146; 149 f.

52. Ibid.

Age civilization is to be found in the valley of the Danube, especially in Austria-Hungary, where we find an exquisitely rich and long-lived Bronze Age culture ultimately ripening into the famous Hals-tatt (or Hallstatt) culture of the beginning of the Iron Age. The copper from Hungary and the tin from Bohemia united in this part of the Danubian basin to produce the Danubian culture of the Copper and Bronze Age, known to the archaeologists as the Danubian III, IV and V.

The roots of this culture of the early metal age are to be traced to the neolithic culture of Danubian I and II. The Danubian I wares are marked by elaborate spiral decoration, slightly conventionalized human figures, representations of draft-animals, double axe motifs etc., and they consisted, *inter alia*, of hemispherical bowls, globular bottles etc.⁵⁴ The pottery of Danubian II includes vessels with concentric circles, meandering patterns, spirals etc., painted in white, yellow, red etc.⁵⁵ The figurines of the Mother Goddess and her dove, certain theriomorphic vessels and some designs on pottery and clay seals point to their religious beliefs. But, perhaps, Danubian II falls wholly in the Copper and Bronze Age of Mesopotamia and Egypt; i.e., there is a great likelihood of some aspects of this culture being influenced by the early metal age culture of these two advanced centres of civilization of those days: Danubian II is generally assigned to the first half of the third millennium B.C.

Danubian III is a Copper Age culture, introduced from abroad, as is indicated by the introduction of the copper battle-axe, which is unknown previously, and which appears to have its prototype in similar battle-axes of regions towards the Pontic-North European plain. Besides the battle axe, which characterizes all the subsequent cultures of the Copper and Bronze Age in the valley of the Danube, the Danubian III, as represented at Bodrogkeresztur graves in Hungary, yields adzes, axe-adzes, quadrangular awls etc. If the war-like nature of this culture⁵⁶ would point to an advanced period of the Copper Age culture in this region, its earlier civilization appears to have been represented by the "Baden culture" with its stores of Einkorn and common wheat, its flint arrow-heads and stone battle-axes—things, which would have been deemed wholly or mostly useless during the later days of the Copper Age culture of the Danube.⁵⁷ It is during the Danubian III that we find the horse domesticated in this area. Rings, bracelets, neck-rings, and other

54. Childe, DEC. (5th edn., 1950); p. 93 f.; especially p. 97 f.

55. Ibid., p. 101 f.

56. Ibid., pp. 110-15.

57. Ibid., p. 112 f.

ornaments, and pottery of various types, including spouted, lugged, handled, collared and pedestalled pots etc., are just few of the contributions of Danubian III in the history of civilization in this region. It is generally held that metallic tradition, inherited from Anatolia and the Caucasus region during the Danubian III continued to be developed during the Danubian IV directly or indirectly by the same regions.⁵⁸ Evidence of copper mining near Saalfeld and of exploitation of tin in Vogtland, together with that of moulds found in several settlements in Austria-Hungary, speaks of the industrial activities of the authors of Danubian IV. To this industry we owe a number of bronze ornaments, including ingot-torques, lock-rings, racquet pins, knot-headed pins etc., as well as ear-rings of gold wire. Contact with the south and the east is revealed by a number of factors. Thus, the "local bronze smiths copied Hittite lunate pendants and Ægean heart-shaped ones....Amber, gold, and Mediterranean shells were freely imported,"⁵⁹ during the Danubian IV.

Bronze Age in China

An important centre of the "Copper and Bronze Age" must undoubtedly be located in the valley of the Huang Ho (Yellow River), wherein we meet with the culture of the preceding Neolithic Age also. Thus, at Hsin Tien in the T'ao valley, and in a number of other places in the neighbourhood of the Yellow River, the Yang Shao culture remains are found superimposed by the relics of the Bronze Age. "Finest and most typical of all these prehistoric villages built on terrace islands is, however, Hui Tsui, the Bronze Age village, which yielded such rich discoveries."⁶⁰ In the vicinity of Kuo Chia Chuang, a village on the northern side of the Chi Chia Ho, Mr. Andersson found along with the cultural deposits of the early Neolithic Age and the deposits of Yang Shao culture, a cemetery of the Bronze Age, yielding some of the richest material of that age found in China.⁶¹

Before proceeding to describe the material remains of the early civilization in China, we may advert in passing to some social aspects, noted by an eminent authority on Chinese history: "The transition from Stone to Bronze Age (in China) happened around 2000 B.C. A proto-feudalism came into existence with the appearance of tribes, nobility, ecclesiastics and farming commoners.

58. Childe, DEC (5th edn., 1950), pp. 116 f. (Cf. *Antiquity*, I, p. 92)

59. Ibid., p. 110 f.

60. Andersson, *Children of the Yellow Earth* p. 259

61. Ibid.

From the, perhaps, thousands of tribes two came to the fore by 1700 B.C., known as the Hsia and Shang. The Hsia, in modern Shansi, was at first the stronger, and thus Hsia or Hua Hsia became the collective name for the Chinese race.⁶² The same process of the emergence of kingship from amongst the tribal chieftains appears to have taken place in a number of other countries, during the earlier part of the "Copper and Bronze Age".

In China, the Bronze Age culture appears to have found a full-fledged expression in artistic and other spheres during the time of the next dynasty, viz that of the Shang or Yin, who had their capital at Yin. "The fief of Shang, from which the dynasty took their name, is located in Shensi about 50 miles south of the right-angled bend of the Yellow River."⁶³ This shows that the Shangs were originally the local inhabitants of that province. The Shangs changed their head-quarters quite a number of times, some of which were not far from the famous site of An-Yang. Yin, the most famous of these, was originally called Po. Amending the traditionally accepted dates in the light of reasonable conjectures. Dr. W. P. Yeats opines that "we may accept as approximate either the latter half of the 12th century B.C. or the first half of the 11th as the time when the Shang Yin capital was moved to the site of An-Yang."⁶⁴ We are inclined to accept the former alternative as the correct one.

A large number of oracle bones and tortoise-shells, found in the district of An-Yang (in Northern Ho-nan)—which had such an uncommon smoothness that they "gleamed like glass"—were being sold for long as "dragon-bones" in China, until they attracted the attention of the Sinologists, on account of a number of letters in archaic character that were found on them.⁶⁵ The Shang inscriptions, happily deciphered, reveal how intimately sacrificial religion and divination were connected with agricultural prosperity in the minds of the people. The king of those days was the first farmer, just as (or, perhaps, more truly than) a modern President is the first citizen of the state. Wheat, rice, millet, alcoholic liquor etc., appear among the usual articles of consumption. Pictographs make it amply clear that the field-work had come to be regarded as a special business of man.⁶⁶ In Egypt and in Mesopotamia, we find almost the same phenomenon operating: The Bronze Age plough,

^{62.} *China Handbook*, 1943.

⁶³ JRAS. (1933), p. 622.

⁶⁴ Ibid., p. 684.

⁶⁵ Read JRAS. (1933), p. 657 f., especially p. 672.

^{66.} Creel, n. 88.

superseding the neolithic hoe, is, quite naturally, always depicted as being used by men.

The excavations in the district of An-Yang, conducted in the thirties, yielded 1,100 skeletons, of which only a few have been so far scientifically examined. They have been recognized as the skeletons of the "proto-Chinese". In all, more than 300 tombs were unearthed, and four of these are alleged to have undoubtedly belonged to the royal family. Among the animal remains unearthed at this site—"the Waste of Yin," or "the Mound of Yin," as it is frequently called—one may include some domesticated beasts like the dogs, the pigs, the deer (each of these of two varieties), the sheep, the goats, the oxen etc., besides some wild animals like the tigers, the panthers, the elephants, the bears etc. One oracle bone inscription refers to the domestication of the ox, while a number of others allude to that of the horse. Chicken-bones are also found here, and some oracular inscriptions allude to the fowl. The importance of the dog in the Chinese diet appears to have lessened since the neolithic times; but that of the pig had increased considerably—quite naturally so, since it multiplies much faster.⁶⁷ Both the wild boar and the domestic pig were offered to the spirits, according to the oracle bone inscriptions.⁶⁸

The excavations at An-Yang yielded abundant bronze objects, including all sorts of early tools and weapons, e.g., axes, adzes, knives, needles, awls, arrow-heads, spear-heads, dagger-axes etc., and even some small ornaments in the form of a shell, or of T'ao-T'ien (or "ogre-mask").⁶⁹ Unlike the bronzes of other places, like Mohenjo-daro etc., the An-Yang bronzes yield a fixed proportion: 83:17. Smelting and casting appear to have been carried on to such a perfection that it "is agreed that while a very few of the best living craftsmen in Europe or America, aided by all the resources of modern science and technology, may be able to equal the casting of the Shang bronze workers, they can do no better."⁷⁰ Indeed, Prof. J. de Morgan even suggests that "Indo-China and China were favoured by nature in a way that may well have been conducive to the discovery of bronze, because here cupriferous and stanniferous ores occur together in great abundance."⁷¹ Almost all the important forms of the Shang and later Chinese bronze vessels appear to have been derived from the pottery of the Shang period. We also know "from the decayed but recognizable carvings found

67. Creel, p. 75 f.

68. Ibid., p. 78. 69. Ibid., p. 114 f. 70. Ibid., p. 112.

71. De Morgan, *Pre-historic Man*, p. 116.

on the walls of tombs, that the beautiful and intricate patterns found on Shang bronzes were reproduced with the same skill and delicacy, in wood."⁷² Ritual vases in bronze have been found here by the score, and a number of decorative designs of animals, etc., found on them, surprise us by their combinations, intricacies and perfection of execution. This sudden emergence of technical excellence exhibited in the casting of bronze becomes almost puzzling, since in the black pottery culture, found at An-Yang itself, there is no trace of bronze and even that of copper.⁷³ Therefore, this Bronze Age culture of the Shangs appears to have been introduced at An-Yang from their previous capital or capitals by the Shangs, who may have borrowed or carried the elements of the Bronze Age civilization from the West.

The pottery, yielded by this great cemetery, was of various sizes, types and patterns—the latter either impressed or incised. Much of it was hand-made, but some turned on the potter's wheel. Most of it was of ordinary clay, but some finer varieties were of white clay. Mr. Liang points out that the "Shang pottery technique is beyond doubt a continuation of the pottery technique of the black pottery culture,"⁷⁴ prevalent in the late Neolithic times. Yet on the whole, as Prof. W. Percival Yeats points out, sufficient "evidence of direct continuity with the neolithic finds of Andersson" is still to come forth, though some painted pot-sherds of the Yang-shao type were found.⁷⁵ Some of the sherds found had even a glaze.⁷⁶

A number of forms like the Li-tripod, etc., and numerous decorative motifs, which Shang pottery shares with the sacrificial bronze vessels of this period, may be said to be peculiarly Chinese, i.e., not found anywhere else outside this area. The artistic excellence, so much in evidence in the Bronze Age culture of China, is no doubt mostly due to the artistic nature of the Chinese, but it is also partly due to the fact that this region was much fertile and productive, enabling its inhabitants an amount of leisure. On the other hand, it must be remembered that many of these attributes or characteristics are shared in no small measure by early Scythian art products, according to M. Rostovtzeff.⁷⁷

Both Dr. Creel and Dr. Li Chi agree in stating that the Shangs came from the east, and think that the original centre of their cul-

72. Creel, p. 95.

73. Ibid., pp. 122-124 also pp. 35, 111.

74. Ibid., p. 50.

75. JR AS. (1933), p. 600.

76. Ibid., p. 685.

77. Creel, p. 121.

ture must, therefore, be traced in the region east of An-Yang. A summary of the results obtained by Dr. Li Chi, in his excavations at An-Yang is given as follows: "From the east came divination by the scorching process, sericulture, tattooing, black pottery, dagger-axes and halberds....and certain jade objects.... To central and west Asian origins bronze casting, the spear and socketed celt are to be assigned; to the south, the shouldered axe, tin, rice, elephant, and water buffalo...."⁷⁸ It would appear that the Chinese under the Shangs had already a number of elements in their culture, which they had borrowed from the westerners and that when the agricultural surplus in their hand enabled them to have more of bronze—especially the bronze weapons—they were able to conquer their weaker western neighbours, and ultimately establish themselves at An-Yang. Thus while it is not impossible that Dr. Creel and Dr. Li Chi are right in looking upon the Shangs as easterners, it must also be noted that this goes against the tradition, which locates the fief of Shang in Shensi and which in itself is not improbable.⁷⁹ For the present it is best to leave this question open. In any case, the upper reaches of the Huang Ho became the seat of the earliest Chinese empire known to history.

We thus find that, as pointed out above, early empires belong to the fertile river-valleys and are mostly confined to them or to the plains in their neighbourhood. We also see that it is in the "Copper and Bronze Age" the age of the origin of classes, that we find the institution of kingship, and then of emperorship, springing up in different parts of the ancient world and that these institutions sprang up within a few millenia. Certainly, this was not due to similarity of ideas being conceived by different peoples, but to certain basic, materialistic factors e.g., the introduction of metal tools in the life of man.

Specialization in culture-types becomes, perhaps, nowhere so much noticeable during the Bronze Age, as in China. Here even in the Shang Age, we begin to find such peculiarities as the peculiar Chinese vessels like the Li-tripod, the Ting-tripod, the "two-storied" vessels etc. The bronze adzes, found here and known as the "Ko", are also peculiar to this region. Immediately after, we find the full-fledged characteristic Chinese art in the Chou bronzes.

Development in the Society of the Copper and Bronze Age

In the fore-going chapters, we have noticed the development of

78. JRAS. 1935, p. 474

79. Supra p. 331

some important aspects of the society of the "Copper and Bronze Age" civilization, that developed in fertile valleys and plains in the neighbourhood of mining districts and that crystallized in the growth of big towns and cities, as well as of kingdoms and empires. Some of these important aspects, pivoted round the commodity production, receive a flood of light from the following observations of an eminent sociologist: "With commodity production, production no longer for use by the producer but for exchange, the products necessarily change hands. In exchanging his product, the producer surrenders it; he no longer knows what becomes of it. When money, and with money the merchant, steps in as intermediary between the producers, the process of exchange becomes still more uncertain... Products and production become subjects of chance... It was not long then before the great 'truth' was discovered that man also can be a commodity, that human energy can be exchanged and put to use by making a man into a slave. Hardly had men begun to exchange than already they themselves were being exchanged.... With slavery, which attained its full development under civilization, came the first great cleavage of society into an exploiting and an exploited class. This cleavage persisted during the whole civilized period. Slavery is the first form of exploitation, the form peculiar to the ancient world.... The stage of commodity production with which civilization begins is distinguished economically by the introduction of (1) metal money, and with it money capital, interest and usury; (2) merchants, as the class of intermediaries between the producers; (3) private ownership of land, and the mortgage system; (4) slave labour as the dominant form of production."⁸⁰

He then adds: "The form of family corresponding to civilization and coming to definite supremacy with it is monogamy, the domination of the man over the woman, and the single family as the economic unit of society. The central link in civilized society is the state, which in all typical periods is without exception the

80. F. Engels, *Origin of the Family*, pp. 222'; Cf. F. Engels, *Socialism: Utopian and Scientific*, p. 34.—"But every society based on commodity production has the peculiarity that in it the producers have lost control of their own social relationships. Each produces for himself, with the means of production, which happen to be at his disposal and in order to satisfy his individual needs through the medium of exchange. No one knows how much of the article he produced is coming on to the market, or how much demand there is for it, no one knows whether his individual product will meet a real need, whether he will cover his costs, or even be able to sell it at all. Anarchy reigns in social production. But commodity production . . . has its own laws, and these laws assert themselves... apart from the producers and against the producers... *The product dominates the producers.*" Vide supra, p. 69.

state of the ruling class. Also characteristic of civilization is the establishment of permanent opposition between town and country as basis of the whole social division of labour."⁸¹

Thus, the base of the mighty empires was to be found in the Copper and Bronze Age in the slavery of millions of human beings, who were not looked upon as human beings; the base of the city-civilization was to be found in the exploitation of innumerable weaker units, called the villages; the base of the family life of those days was to be found in the control of man over money or property, (symbolizing his control over the means of production). All these commonplace facts are first disclosed to us by the introduction of the Copper and Bronze Age civilization.⁸² as much as the art of writing is. If slavery represents one aspect of civilization or civilized life, with far-flung contacts of human beings, the relationship between the slave and the master represents another. We thus see the beginnings of the legal literature throughout the world, not long after the beginning of the Bronze Age—not very long after writing actually came into vogue. Most of what is given by us in an earlier chapter, viz. Chapter IV, about legal matter from inscriptions, belongs to this age or to the beginning of the Iron Age.

As seen above, the kings and the emperors were the greatest slave-owners. Prof. Weech observes in this connection as follows: "The wars of rulers like the Sargons Naram-Sin, Thutmose, Sennacherib, Nebuchadnezzar and Cyrus produced hordes of slaves to work for the conquerors. Some served them as potters, masons, weavers or smiths, or amused them as dancers, acrobats and singers. But the vast majority was used for the hard work of agriculture and transport. The slave population increased so easily that ambitious monarchs could afford to squander thousands of lives on building palaces, pyramids and ziggurats. The first chapter of the book of Exodus gives some faint idea of the misery of the state of slaves; but it does not dwell on the bestial cruelties of the official taskmasters who 'made their lives bitter with hard bondage'.

81. F. Engel, *Origin of the Family*, p. 224

82. Vide CAH., I, p. 520 f., which shows how in Mesopotamia both the prototype of coinage and the institution of slavery came into vogue almost simultaneously, about the beginning of the Copper Age. It may also be noted that in Egypt simultaneously with the arrival of the 1st Dynasty, we not only find the copper coming into general use, but we also come across the first (Asiatic?) captives depicted on ivory plaques etc (See Flinders Petrie, *The Royal Tombs*, (1900) Vol I, pp. xii and xxii)

The men whose labour produced the stately monuments which still excite the tourist's admiration were literally 'living tools', to be used till they were worn out. Agricultural slaves were slightly better off, and those employed in domestic service enjoyed a good deal of material comfort (of course, speaking in comparative terms). But all alike were subject to their masters' caprices; they lived their lives as their masters ordered, and they knew that the same fate awaited their children."⁸³

Prof. Weech has here touched upon the subject of difference of treatment meted out to different kinds of slaves, which is also alluded to by Prof. J. H. Breasted in the following: "Household slavery was usually not attended with much hardship, but the life of the slaves on the great plantations was little better than that of beasts. Worthy and free-born men from the eastern Mediterranean were branded (in the Roman world), with a hot iron like oxen, to identify them forever. They were herded at night in cellar barracks, and in the morning were driven like half-starved beasts of burden to work in the fields. The green fields of Italy, where sturdy farmers once watched the growing grain sown and cultivated by their own hands, were now worked by wretched and hopeless creatures who wished they had never been born. When the supply of captives from the wars failed, the Roman government winked at the practices of slave pirates, who carried on wholesale kidnapping in the Ægean and eastern Mediterranean for years."⁸⁴

Though this description refers to the early historic period of the Iron Age, the same conditions of the slaves appear to have been prevalent among a number of tribes and peoples, in all the earlier periods ever since the development of the Copper Age. In the *Iliad*, which describes the conditions of the "Heroic Age" of the East Mediterranean civilization, belonging to about the end of the Bronze Age and the beginning of the Iron Age, "we find the woman already being humiliated by the domination of the man and by competition from girl slaves In Homer young women are booty and are handed over to the pleasure of the conquerors, the handsomest being picked by the commanders in order of rank; the entire *Iliad*, it will be remembered, turns on the quarrel of Achilles and Agamemnon over one of these slaves. If a hero is of any importance, Homer also mentions the

83. Weech, *World History*, pp. 85-86 (Matter within brackets is our insertion).

84. Breasted, *Ancient Times*, p. 567.

captive girl with whom he shares his tent and his bed. . . . The legitimate wife was expected to put up with all this, but herself to remain strictly chaste and faithful."⁸⁵ Thus not only did man become the slave of Mammon, but woman also became the slave of man.

PART IV
IRON AGE

CHAPTER XV

THE BEGINNING OF THE IRON AGE

"Much archaeological evidence about pre-historic centres of culture in Europe has been collected, but it has never¹ been correlated with the linguistic evidence for such cultures."²

—E. J. THOMAS

Stages of Development of Human Civilization

IN the foregoing pages, we have spoken of various archaeological ages, including the Old Stone Age, the New Stone Age, the Copper Age, the Bronze Age etc., through which we traced the development of the early human civilization. The archaeologist's terminology, which takes into cognizance the nature of the implements left by men when describing the stage of the society in which the authors of those implements lived, may be usefully correlated to that of the sociologist, as Prof. V. Gordon Childe has attempted to do, following up the clues left by Engels. But the archaeologist must, first of all, clarify that the terminology that he uses is different in more ways than one from that used by the sociologist, and must not blindly borrow the terminology used by the latter, from an angle that necessarily differs from that of the archaeologist. We may briefly note here that what the eminent sociologist, Engels, calls "barbarism" is what we should legitimately call from an archaeological point of view "civilization". Engels speaks of two stages of barbarism, a lower one and a higher one, the former of which undoubtedly corresponds to the Copper and Bronze Age civilization of the archaeologist, and the latter to the Iron Age civilization. Engels evidently uses this terminology from the point of view of the historical Greeks, who dubbed all the more primitive tribes and peoples that surrounded them as barbarous. He thus includes among the "civilized" men those that had entered the stage of the civilization of the historical Greeks of the developed Iron Age and the like. To us, even the ancient Egyptians, with their pyramids, were

1. Correct this to 'seldom'. Cf. Dr Isaac Taylor, *The Origin of the Aryans*; Dr. V. Gordon Childe, *The Aryans*, and other works.

2 I H Q., V, p. 251

civilized, and not barbarous. We prefer to defend our terminology by a recourse to the etymological meaning of the words "civilization", "civilized" etc., and to depend upon the monuments and especially the big cities that the early metal age produced, for helping us defend it.

Nevertheless, we shall note how Engels' lower stage of barbarism corresponds to our "Copper and Bronze Age civilization" and his upper stage of the same to our "Iron Age civilization". He observes: "Of the industrial achievements of this (lower) stage, two are particularly important. The first is the loom, the second the smelting of metal ores and the working of metals. Copper and tin, and their alloy, bronze, were by far the most important; bronze provided serviceable tools and weapons, though it could not displace stone tools."³ Elsewhere he states: "The next step leads us to the upper stage of barbarism, the period when all civilized peoples have their heroic age: the age of the iron sword, but also of the iron ploughshare and axe. Iron was now at the service of men, the last and most important of all the raw materials which played a historically revolutionary role . . . Iron brought the tillage of large areas, the clearing of wide tracts of virgin forest; iron gave to the handicraftsman tools so hard and sharp that no stone, no other known metal could resist them."⁴

When Did the Iron Age Commence?

If the sociologist's classification is somewhat obscure for an average archaeologist, it must also be admitted that in one sense, the generally accepted classification of Palaeolithic Age, Epipalaeolithic Age, Neolithic Age, Chalcolithic Age, Bronze Age, Iron Age etc., has also been deficient, as is pointed out above. Leaving aside even the question of terminology, the archaeologists have not sought to clarify their attitude about the commencement of an age, so that an ordinary question like that connected with the beginning of the Iron Age, i.e., when exactly did it actually commence, does not appear to be altogether free from difficulties.

To say that the presence of iron does not at all indicate the beginning of the Iron Age may appear to be confusing; nevertheless, this is true. For, we certainly do not refer to the Aurignacian industry as belonging to the Iron Age, although in certain

3. F. Engels, *Origin of the Family*, pp. 202-203.

4. *Ibid.*, p. 205.

Aurignacian caverns, iron ore or oxides of iron be found.⁵ We have seen above that red haematite (iron oxide) was used by man at least ever since the upper palaeolithic age. But no one would characterize the cultures that used such an oxide as belonging to the Iron Age. To say that the Iron Age started with the use of iron objects is almost equally wrong: for, we find that a "few beads of meteoric iron" have been unearthed at Gerzeh (or Gerzah) of the Middle Pre-dynastic Copper Age, and these have "no significance for the history of metallurgy."⁶

Nor is it correct to state that the Iron Age started with the first smelting of iron. Once the process of smelting was known in the case of copper, it must naturally have been utilized in the case of the ores of other metals: so that, occasionally a quantity of iron ore must also have been smelted under favourable conditions. We know that at a number of places, objects of iron have been used almost since the beginning of the Copper Age for ornamental purposes, even like the objects of gold, silver and other metals: Iron was undoubtedly looked upon as a precious metal in those days, since it was difficult to extract pure iron from the ore and since it was not easily "pliable". We learn from Prof. T Eric Peet that in Egypt, "in two tombs of the Middle Pre-dynastic Period, near Medium, were found beads of hammered iron, in one case strung alternately with others of gold."⁷ Prof. V. Gordon Childe states that in Egypt certain "iron beads are dated to 72"⁸ S.D., i.e., are attributable to the Late Pre-dynastic Copper Age. He also refers to an "iron ring of very dubious associations," found at a Copper Age site in Thrace.⁹ Elsewhere he observes: "The most remarkable discovery in the Kakavatos tombs, however, was an iron ring, which has a counterpart at Vapheio. These are the earliest pieces of metallic iron in Europe and they show that it was regarded as a precious metal in the sixteenth century (B.C.)."¹⁰ Thus, it will be seen that not even the use of objects, made of smelted iron, would constitute the criterion that would enable us to call a period the beginning of the Iron Age.

One of the earliest pieces of iron was found in Grave No. 580 at Ur, and this was of wrought iron. "The same Grave 580 con-

5. De Morgan, *Pre-historic Man*, p. 50

6. Childe, NLMAE, p. 114. Such meteoric iron is mentioned in the records of Egypt and Assyria as well as in the Hebrew chronicles as "the metal of heaven".

7. CAJ., I, p. 242; cf. 109

8. Ibid., p. 118

9. Childe, DEC., p. 166

10. Ibid., p. 83; cf. p. 166

tained also a solid gold adze of excellent workmanship, with a cylindrical hole for insertion in the handle; a gold spearhead with a long tang; two small gold chisels; a small silver jug and silver belt; carnelian beads and beads of gold filigree."¹¹ Sir Leonard Woolley assigns all these finds to about 3500 B.C., when the Bronze Age civilization had probably already started. Similar objects of iron are also found in some Bronze Age tombs of the dynasties of Egypt, to which references will be made later. But these objects, though of wrought iron, were very highly priced like those of gold, as other contents of the same graves, whether of Ur or of Egypt, would show. Further, at Khafaje on the Diyala, a dagger-blade was found¹² probably in early Bronze Age strata. But even this weapon does not allow us or enable us to characterize the said strata as belonging to the Iron Age, since this is altogether an isolated instance. No real start of the Iron Age metallurgy can be said to have commenced since the casting of this weapon, which is almost like a freak of invention in the world of those days.

Introduction of Iron Age through a New Process of Smelting

In view of these considerations, it is the introduction of a successful process of smelting iron comparatively easily—that enabled a large-scale manufacturing of iron tools and weapons—that must be looked upon as the date of the beginning of the Iron Age. In this context, Prof. V. Gordon Childe makes the following noteworthy observations: "The discovery of an effective method of smelting iron (or perhaps, rather the dissemination of a process long discovered, but kept secret by a barbarian tribe of Armenian mountaineers) gave opportunities for emancipation. For it made metal cheap and so broke the monopoly of Bronze Age despots. For iron ore, often indeed of very poor quality, is available nearly everywhere, and could be gotten without deep mining in hard rocks."¹³ If, indeed, the easy process of smelting

11. *Antiquity*, I, p. 341.

12. Childe, N.I.M.A.E., p. 189.

13. Childe, ST, p. 15. Cf. E.B. (14), XII, p. 650: "Great deposits of these minerals (viz iron) in a relatively pure state, close enough to the surface to be mined easily, occur in all regions." It is no wonder, therefore, that we come across masses of iron, occasionally though, since a very early date. A lump of iron, found in the VIth dynasty tomb, at Abydos, is supposed to have been "obtained from the local ores by primitive metallurgical process," while "a culte of it was found by E. J. Forsdyke in a sealed tomb-deposit at Knossos dating from about 1800 B.C." [E.B. (14), II, p. 252. ii.]

was discovered long previously, then it is not really the actual knowledge of such smelting, possessed by just a small group of individuals but rather the dissemination of that knowledge, affecting the process of making tools and weapons (that were hitherto made of bronze), that must be considered as the factor that marks the introduction of the Iron Age.

The Sword before the Sickle

The earliest sizable (or "industrial") finds of iron are probably those of weapons and not of tools, practically everywhere in the ancient world, as can be proved from definite archaeological evidence from Egypt,¹⁴ Hallstatt¹⁵ etc., as from other considerations. Quite naturally, the utility of iron for that easiest method of acquisition of wealth, namely plundering, was realized by the kings and chieftains earlier than its utility for peaceful production. If the smaller finds of iron—the earliest ones—are ornaments, probably worn by the kings, the queens, the elite, the ladies of the court etc., of the "Copper and Bronze Age", the bigger finds, that come next in time, viz., the weapons, also pertain to the richest of those days, the kings and others. It took some time indeed, before iron weapons came into the hands of the common soldiers. As to the use of iron among the common soldiers and peasants, archaeological evidence, so far available, may not be deemed decisive as regards the question as to who, whether the common soldier or the common peasant, first began using the implements thereof. Prof. V. Gordon Childe appears to favour at one place the hypothesis about the peasant; but even though the archaeological evidence gathered in favour of such a supposition be sizable, it may by no means be decisive; for, the number of peasants being larger than the number of warriors throughout the early metal age cultures, iron sickles are on the whole bound to be found in greater numbers, and, outside the royal graves, as a class, even earlier than the swords or daggers, made of iron. We must, however, point out that the weapons have always been the privilege of the ruling authorities, and that barring some

¹⁴ E.B. (14), II, 252, ii.—" . . . the earliest objects in Egypt and elsewhere are chiefly weapons and ornaments, and not tools."

¹⁵ De Morgan, *Prehistoric Man* (1924), p. 127 —" . . . at the beginning of the Hallstatt phase, iron, a metal still rare and precious, had to be economized. It was hardly ever used for anything other than side arms, such as swords and lances, which being held in hand would not be lost." See below under "Hallstatt Culture" in Chapter XVIII, for further information on this point.

troublesome periods, they were always distributed by those authorities among their servants or sepoys. Naturally, iron was used for fashioning those implements which were supposed to pay more and quicker dividend, i.e., for weapons rather than for tools. In fact, it would not be quite fair to juxtapose the sword against the sickle, and think in terms of a common warrior and a common peasant as being on an equal footing, since there never was such a case—the common warrior being always rated higher than the common peasant. The former was, so to speak, a protege of the royalty, the latter was not.

Story of the Migration of Iron Age Civilization

We have given above a quotation from Prof. V. Gordon Chlile, that alludes to the Armenian mountaineers as the discoverors of iron or as being responsible for ushering in the Iron Age. In order to make this point intelligible to the reader, we have summarized here what we shall expatiate upon in succeeding pages.

We have seen in some previous chapters that in a number of localities in the ancient world, the Bronze Age civilization was gradually supplanted by the civilization of the Iron Age. This was so, not only in the southern steppes of the U.S.S.R., in the Caucasus region etc., but also in the city of Troy, at Mycenae, at Ashshur, at An-yang (in China), and in many other places throughout the ancient world. The earliest upheavals, caused by the introduction of the Iron Age, appear to have taken place during the latter half of the second millennium B.C. Secondly, generally speaking, the regions further removed, so to speak, from the epi-centre of the Iron Age upheavals, which is to be located in the Caucasian-Armenian mountains, received the shocks or the impact of the waves of those upheavals, or were introduced to the Iron Age civilization, later than those regions that were nearer to it. Thirdly, all the available evidence goes to show that the credit of starting the Iron Age civilization belongs originally, and in the main, to some "Indo-European" tribes, amongst whom a place of pride, no doubt, belongs to the Hittites of Armenia. It is to these Hittites that the Egyptians owed their weapons and implements. In Mesopotamia, it is the Assyrians, to whom belongs the credit of having destroyed the Bronze Age empire of the Babylonians, just as it is the Hittites that destroyed the Bronze Age Egyptian empire over Syria-Palestine. But then, the Assyrians themselves owed their iron weapons to the Hittites.

Almost simultaneously with the event of the destruction of the Babylonian empire, the Bronze Age empire of the Shangs in China was swept off by the Chous, who introduced the Iron Age civilization in the early history of China. We have seen above how, many a Bronze Age city that was once covered with glory, like Troy, Knossos, Phaistos, Mycenae, Tiryns etc., went up in flames one after the other almost in a chronological order, indicating as it were whence the new immigrants came replacing the rapier of bronze with the sword of iron. *It was the sword and not the plough that introduced the Iron Age civilization in the initial stages, so that we first meet the ashes and ruins caused by it, rather than the new fields furrowed by it, or new cities built.*

Iron Age in Syria-Palestine

As to the actual finds of iron weapons and tools, we learn that in 1937, excavations at Ugarit or Ras Shamra in Northern Syria, about 125 miles north of Beirut, yielded a wonderful battle-axe, the blade of which was of iron. This in itself was looked upon as sensational, "for the axe belongs to the 15th century or to the first half of the 14th. The mount is of copper inlaid with gold wire, and ornamented with a boar's protome and the heads of two lions from whose mouths the blade emerges. Just so, the blade of the famous dagger sculpted on the walls of Yazilikaya emerges from the mouths of a pair of lions, and the whole style of Yazilikaya weapon corresponds with that of one from Ras Shamra."¹⁶ It is also significant that "Ras Shamra blades (of iron) are probably earlier than any European sword yet known."¹⁷ It may be pointed out that at Ras Shamra or Ugarit, excavations have yielded in addition quite a number of tablets, written in many languages and dealing with all sorts of topics. A number of races like the Hurrians, the Proto-Phoenicians etc. appear to have met and mingled here in war and in trade, in about the middle of the second millennium B.C., according to the testimony of these inscriptions. The Tell el-Amarna letters and other Egyptian and Hittite documents mention the city of Ugarit frequently.

Ugarit must, no doubt, have been one of the earliest important cities of the very beginning of the Iron Age. The palace at Ugarit, that contained a big armoury, appears to have been once

16. *Intiinity*, XIII, p. 306; Finegan, p. 146, etc.

17. Proceedings of Prehistoric Society, (for 1948), p. 185; see Pl. XVII

destroyed about 1360 B.C., and after the 12th century, it ceased to exist. It is stated by one authority that "Ugarit was destroyed by an earthquake in the middle of the fourteenth century, but was reconstructed, and finally destroyed by people from the north and the peoples of the sea at the end of the thirteenth and the beginning of the twelfth century B.C."^{17a} States another authority: "Ugarit, owing to its special position, was not only a centre of the Mediterranean trade, but was the meeting-place of important trade-routes from Asia Minor, Cappadocia, Assyria and northern Syria. Until its destruction by the Sea-peoples in the 13th century B.C., it was probably one of the most important and prosperous cities of Phoenicia." He adds: "The Phoenicians were the first people to make use of an alphabetic mode of writing instead of the cuneiform systems of writing used in Egypt and Mesopotamia . . . In the excavations at Ugarit, there were discovered a large number of tablets written in a different kind of writing from any found before. The writing made use of 29 signs, and therefore proved to be a Semitic dialect, not unlike Hebrew. However, when Ugarit fell in the 13th century, this form of alphabetic writing seems to have come to an end."^{17b} Evidently the end of the culture, using this type of alphabetic writing in Ugarit region, was due to the invasion of the "Indo-Europeans". On the strength of the similarity betrayed by the ceramics and the alphabetic scripts, found in the Ugarit region and in the post-Harappa culture of Jhukar, it will be possible, we believe, to substantiate some of the views expressed by us above.

In Syria-Palestine, we come across also other important centres of iron industry at the beginning of the Iron Age. Gerar (modern Tell Jemmen) was one such centre in Palestine, where Dr. Flinders Petrie found not only iron swords, but also iron hoes and iron sickles.¹⁸ He states: "The growth of iron working has been fixed not only by single tools, but by the position of furnaces at Gerar. There is a little work as early as 1350; by 1175, the metal was cheap, hoes and picks of some pounds weight being made, and a large furnace in use. Swords were made and tempered in a long pottery bed heated by the gases from a furnace at one end."¹⁹ Elsewhere he observes that "altogether six suc-

^{17a.} Daniel, p. 222. Schaeffer, in *Syria*: 1926-1939

^{17b.} Oxford Junior Encyclopaedia, (London, 1938), Vol. I, p. 364. i. This alphabetic writing is quite different from the Phoenician script examples of which are to be found here as well as in the Moabite Stone of Byblos. See above p. 39. Also the Cuneiform Texts of Ras Shamra-Ugarit.

¹⁸ Cf. Childe, P.A., p. 39.

¹⁹ *Antiquity*, IV, (1930), p. 281; cf. *Antiquity*, I, p. 349.

cessive towns were cleared by cutting away about thirty feet of the mound", and that by 1200 B.C. were being made "a pick of seven pounds weight, large hoes and plough-shares."²⁰

Another important city, that was destroyed by the immigrants of the Iron Age, is the walled town of Jericho, the principal town in the valley of the Jordan. The second destruction of the City D of Jericho, from among the series of disasters that befell this city, was the most serious, and it overtook both the palace and the city-walls, reducing portions of it to charred timbers and ashes "not later than around 1300" B.C.²¹ Over its ruins was built up the City E of Jericho, which belongs to the Iron Age. We find Joshua, a leader of the Israelites, mentioned in the Old Testament as attacking Jericho, a city of the Iron Age, consecrating its wealth to the Lord.²² A later passage refers to another hamlet built over it by a man from Bethel, named Hiel, in spite of the curse of Joshua on the builder.²³

The city of Bethel, an important trade-centre between Jericho and Michmash, is also known to have been overtaken by a raid accompanied by an arson, the burnt bricks and the charred ruins in it being dated to about the thirteenth century B.C. Over this debris, we find another town being built in the early Iron Age.²⁴

Hittite Invasion of Syria-Palestine

Whence was this iron introduced into Syria-Palestine, wherein we meet at present the earliest Iron Age sites? The source of all this iron is indicated by Jeremiah (15.12), which characterizes it as being "northern". It is the Hittites of Cappadocia (or Anatolia) that appear to have introduced iron into Syria-Palestine from

20. *Antiquity* IV, (1930), p. 281.

21. Finegan, p. 135.

22. Cf. Joshua, 6.19:—"But all the silver, and gold, and vessels of brass (= bronze) and iron, are consecrated unto the Lord." Also Joshua, 6.24:—"And they burnt the city with fire, and all that was therein: only the silver, and the gold, and the vessels of brass and of iron, they put into the treasury of the house of the Lord."

23. The curse to the builder is evidently intended to show that there was never any important city built at the place, after the destruction of the Iron Age city (City E.) of Jericho. We are, therefore, unable to agree with Prof. Finegan's views that Joshua destroyed Bronze Age City D, and that the "construction of City E may well be connected with the statement in I Kings 16:34 that "...Hiel built Jericho in the days of Ahab." (See Finegan, p. 135). The Bible, as shown in the previous footnote, distinctly refers to Joshua destroying the Iron Age city

24. Finegan, p. 13.

that direction, after gnawing bit by bit into the territory of the empire of the Pharaohs, during the first three centuries of the latter half of the second millennium B.C. The numerous defeats that they inflicted upon the forces of Pharaohs were due, not to their racial superiority or to the military genius of their kings, but to the monopoly that their kings had over the iron mines, that worked in Cappadocia, and that supplied them with some excellent iron. "The Hittites of the Halys basin worked the mines south of the Black Sea, and gradually armed their soldiers with weapons which were immensely superior to their opponents' bronze spearheads and daggers."²⁵ Another authority states: "The legendary home of iron is North-east Asia Minor, where the Chalybes (mentioned by Aeschylus in the 6th century B.C.) once had a kind of monopoly; but about 200 miles to the south was Commagene (*ubi ferrum nascitur*, the birth-place of iron) which also has serious claims to priority."²⁶

We find a long succession of Pharaohs, beginning with Thutmosis (or Tuthmosis) III (1501-1479 B.C.), trying to emulate the examples of earlier Pharaohs, but with less and less success, and carrying on forays into the territories of the Hittites, the Mitannis and others. Despite the glorious victories of their arms, that their inscriptions pronounce, especially in their mighty combats with the Hittites, we find that they were neither able to destroy the Hittite power, "nor able to drive the Hittites out of Syria, for these Hittite invaders from Asia Minor possessed iron, which they could use for weapons,"²⁷ while they themselves used bronze weapons.

We must crave the indulgence of the reader for inflicting upon him the following long quotation about the Hittites from the graphic pen of one of the greatest historians of all times, Prof Gaston Maspero: "They (the Hittites) had, moreover, commercial relations with Egypt, and furnished it with cattle, chariots and those splendid Cappadocian horses whose breed was celebrated down to the Greek period. They were already, indeed, people of consideration; their territory was so extensive that the contemporaries of Thutmosis III called them the Greater Khati; and the epithet "vile", which the chancellors of the Pharaohs added to

25. Wœc, *World History*, p. 57

26. E.B. (14), II, p. 253

27. Breasted, *Ancient Times*, p. 64. Also see E.B. (14), II, 500 f. Rawlinson & Gilman, *Ancient Egypt*, pp. 219, 231, 238 f. etc. Maspero, *The Struggle of Nations*, pp. 265 f., 296, 350 f., especially, pp. 357 f., 364 f., 430 f., etc.

their name, only shows by its virulence the impression which they had produced upon the mind of their adversaries. . . . The dress of the people, taken all together, was of better and thicker material than that of the Syrians or Egyptians. . . . They had usually neither shield nor cuirass, but merely, in the way of protective armour, a padded head-dress ornament with a tuft. The bulk of the army carried short lances and broad-bladed choppers, or more generally short thin-handled swords with flat two-edged blades, very broad at the base and terminating in a point. Their mode of attack was in close phalanxes, whose shock must have been hard to bear, The Hittite chariots were heavier. . . . Pharaoh's generals were accustomed to punish, one after the other, these bands of invading tribes, and the sculptors duly recorded their names on a pylon at Thebes among those of the conquered nations, but these disasters had little effect in restraining the Hittites. They continued, in spite of them, to march southward, and the letters from the Egyptian governors record their progress year after year. They had a hand in all the plots which were being hatched among the Syrians, and all the disaffected who wished to be free from foreign oppression—such as Abdashirti and his son Aziri—addressed themselves to them for help in the way of chariots and men. Even in the time of Amenophis III, they had endeavoured to reap profit from the discords of Mitanni, and had asserted their supremacy over it.”²⁸

Introduction of Iron Implements in Egypt

The earliest appearance of iron implements in Egypt belongs to the time of the XVIIIth Dynasty, but even this is only symbolic. For, these are only “miniature model implements, fixed into hard, dark-grained wooden handles,”²⁹ found in the tomb of Tut-anh-Amen (c. 1360-1350 B.C.). The discoverer of this far-famed tomb, Prof Howard Carter, makes the following observations, which can be easily modified slightly by the reader in the light of what is stated above, but which contain substantial truth: “It is not until this period that we have any real authentic proof of the use of iron by them (the Egyptians), and even in this reign, probably, only as a strange and new metal iron objects are singularly scarce in Egypt even in the succeeding dynasties and foreign dominations”³⁰. The miniature implements found in

²⁸ Maspéro, *The Struggle of the Nations*, pp. 352-358.

²⁹ Howard Carter, *The Tomb of Tut-anh-Amen*, Vol. III, p. 80.

³⁰ *Ibid.*, p. 91.

the tomb include a lancet-shaped instrument, a couple of chisel-shaped ones etc. Their total weight does not exceed four grams. From the time of Tut-anhk-Amen's reign onwards, we come across some special types of amulets made of iron, for the sake of the dead.³¹ Thus, it is clear that this tomb belongs to about the end of the Bronze Age in Egypt, the glories of which stand fully revealed to us in its contents.

It is not possible to give here even a bare summary-list of the most important articles found in this tomb. We may, however, note that the unique coffin found in it—the innermost of the three found here—encased the king's mummy, and that it was wrought wholly of gold, 2½ to 3½ millimetres in thickness. The estimated value of the gold in this coffin alone was around \$ 2,50,000. Covering the head and shoulders of the mummy, Osiride in form, "was a magnificent mask of beaten gold. The outer wrappings were embellished with heavy gold trappings, which had somewhat suffered from the action of unguents. Encased within the wrappings were 143 objects, comprising a diadem, daggers, girdles, personal jewellery and amulets. Three of these objects introduced an astonishing feature. They were of iron."³² It was, however, long after, that actual implements of iron were introduced into Egypt. We come across the earliest inscriptional reference in Egypt to such a weapon in the days of the XIXth Dynasty:—"A clay-tablet letter written by one of the Hittite kings tells us that he was about to send a shipment of "pure-iron" to Ramses (or Rameses II), who had asked for it, and that meantime a sword of iron was being sent to the Egyptian king as a gift (thirteenth century B.C.) it was from the Hittite iron mines that the metal first becomes common in the eastern Mediterranean."³³

The wealth of the Nile valley in the Bronze Age is made manifest not only by the Tomb of Tut-anhk-Amen or the great temples and other monuments, but also by the incidental references of the contemporaries of this and other Pharaohs. Thus we find that Dushratta, a king of the Mitanni, wrote to Amenhotep (or Amenophis) III (1412-1376 B.C.), a predecessor of Tut-anhk-Amen, as follows, demanding of him gold in return for the hand of his daughter: "Send me so much gold, that it cannot be measured, more than thou didst send to my father; for in my

31. Carter, *The Tomb of Tut-anhk-Amen*, Vol III, p. 92.

32. Ibid., Vol. II, Preface, pp. xxii-xxiii.

33. Breasted, *Ancient Times*, p. 241. Cf. CAH., II, p. 267.

brother's land (i.e., Egypt) gold is as common as dust."³⁴ He then tells that the Pharaoh had sent his father Shutarna a dish and a cup of gold, in addition to a brick of solid gold.³⁵ It is clear on what the owners of the earliest iron mines were casting their coveting eyes in Egypt. It is also clear from the evidence that we possess that these owners were quite familiar with horse-riding, charioteering etc., and that they carried these elements of culture wherever they went.³⁶

Introduction of Iron Weapons in Ashshur

As Prof. Breasted observes: "While the early civilization of Assur (or Ashshur) came from the south, the little city-kingdom was equally exposed to influences from the north and west. There in Asia Minor were the hostile Hittite communities, some of which were venturing eastward to the Two Rivers (Tigris and Euphrates). More than once Assur was ruled by Hittite lords, only to fall back again under the control of Sargon, Hammurapi, or some other ruler of Babylonia."³⁷ We may add that it was especially the Hittite civilization of the early Iron Age which appears to have influenced the Bronze Age civilization that the Assyrians owed in a great measure to the Sumero-Babylonians and others. Breasted states: "Through contact with the Hittite west, iron had been introduced among the Assyrians. The Assyrian forces were, therefore, the first large armies equipped with weapons of iron. A single arsenal room of Sargon's palace was found to contain two hundred tons of iron implements. To a certain extent the rise and power of the Assyrian Empire were among the results of the incoming of iron."³⁸ The Assyrians appear to have actually emulated the Hittites in the use not only of the iron weapons, but also of the phalanx, with which they marched against their enemies; and both these elements were picked up by the Persians.

34. Guide: EC., p. 133.

35. Flinders Petrie, *Syria and Egypt*, p. 20

36. Prof. Eduard Meyer calls our attention to a new type of chariot, found for the first time during the XVIIIth Dynasty in Egypt, whose axle is made of birch-bark. Since this tree grows in the Caucasus and the regions to its north, and since the chariot was one of the special attributes of the culture of the early "Indo-Europeans", including the Hittites, etc., he is of the opinion that the Egyptian Pharaoh owed this chariot to the Hittites or their kins. Many authorities are inclined to look upon the Hyksos, who brought into Egypt excellent chariots, to be used in war, as being an "Aryan" tribe.

37. Breasted, *Ancient Times*, p. 143.

38. Ibid., p. 157. Vide supra, pp. 349-50 (quotation from Maspero).

Apparently, the use of the iron weapons appears to have introduced a new mode of fighting, which was found advantageous in all the earliest empires of the beginning of the Iron Age.

In many respects, however, these borrowings of the time of the late Bronze Age and the early Iron Age must have been mutual. One reason for this is that the beginning of the Iron Age was made, not in one of the most civilized centres of the Bronze Age industry of the ancient world, but in one of the backward centres of that world. The Hittite and other Armenian tribes, who started the Iron Age civilization, belonged to mountainous regions, and they were far behind their contemporaries of the Mesopotamian plains. They appear to have owed to the Sumero-Babylonians and the Assyrians a number of elements of their civilization, including the use of the cuneiform script, the lion-headed eagles, the heraldic double-headed eagles, double straight gates, and even Babylonian and Assyrian weights for the metal that they exported.³⁹

Such mutual borrowing often makes the narration of any historical account complicated; but if it is, therefore, omitted in a book like the present, it must never be taken for granted that the borrowing was always from one side. In the present case, the matter is rendered more complicated by the fact that the Hittites were only one of the numerous tribes that became acquainted with the new metal by about the first half of the second millennium B.C. The most prominent among the compeers of the Hittites were the Mitanni, the Urartians etc., all of whom lived originally in the regions of the Caucasus and Armenian mountains and the plains in their vicinity. These tribes fought not only with the Bronze Age despots of the fertile riparian plains, but also with each other, making alliances with either the suzerains of these plains or the chieftains of those neighbouring tribes, as the circumstances dictated.

The Urartians were a tribe that lived on and around Mount Ararat (Bible) or Urarut (Mesopotamian inscriptions) in Armenia. Like the Hittites, they too had a script, and they have left a considerable body of cuneiform inscriptions, known as the Vannic texts, in the vicinity of the Lake Van or Wan. Here they established

39. Breasted, *Ancient Times*, p. 240; Childe, *Sryans*, p. 28; De Morgan, *Prchistoric Man*, p. 276; 163; etc. Cf. Breasted, *Ancient Times*, p. 159:—"Sennacherib tells us that he had in his palace a portal made after the model of a Hittite palace, and his predecessors had long before built similar portals like those they had seen in the Hittite west." So, if the Hittites borrowed certain elements of their civilization from the Babylonians, they undoubtedly gave at least some of them back to the latter's successors in Iraq.

a great power, which, like the Hittite kingdom, proved to be a formidable adversary of the Babylonian and Assyrian kingdoms. The Urartians differed from the Hittites in speech, even as the Mitannis possibly did; but all these probably belonged to the same Armenoid stock.⁴⁰ The Urartians and the Mitannis appear in the beginning of their history towards the east of the Hittites.

The chief points in the foregoing paragraphs appear to have been summed up, as it were, so far as the history of the architecture of some of these tribes (or peoples) is concerned, in the following remarks: "In the West, the monuments are essentially Khatti-Hittite, in the East, Khurri-Mitanni. . . . In the first centuries of the first millennium B.C., Assyrian influence was felt in the East, while the late Assyrian art was not a little influenced by the Hittite-Khurriish."⁴¹

Ancient Armenians and Iranians

Archaeological evidence points to the conclusion that the earliest Armenians of the very beginning of the Iron Age culture had the 77 skull index as the prevailing type (viz. that representing the 'peak') among them.⁴² Further, the Russian anthropologists, Bunak and others, also point out that the earliest Iron Age skulls in Armenia differ in some respects from those of the present-day Armenians and that they resemble more a northern type.⁴³ This would probably show that the present-day Armenians represent a more mixed population, that the ancient Armenians, who were more akin to their northern neighbours, probably represented a purer type, and that these ancient Armenians came to the regions around Armenia at the beginning of the Iron Age, from their homeland in the north of the Caucasus, or in and around the Caucasus. There is a striking resemblance between "The profile of the Armenians still living in the Hittite country" and that of "the head of an ancient Hittite as carved by an Egyptian sculptor on the wall of a temple at Thebes, Egypt."⁴⁴ The prominent aquiline nose and the receding forehead are common to both. Some anthropo-

40. Cf. Childe, *Iryans*, p. 38: "The monuments of these non-Iryan populations (who were 'akin to the bulk of the Mitannians of the Amarna Age') are linguistically the 'Vannic' inscriptions from Armenia, racially the Armenoid or Hittite types depicted on the bas-reliefs of Tell el-Halaf."

41. E.B. (14), XI, p. 608. i.

42. C.U.A. Kappers, *In Introduction to the Anthropology of the Near East*, p. 154.

43. Russian Anthropol. Jour., Vol. XVII, (1920), p. 64.

44. Breasted, *Ancient Times*, p. 240.

logists have at times called this the "Iranian Type." Thus, Dr. P. Topinard observes: "The *Iranian type* is represented by the Tadjicks of Persia, the Parsees, the Armenians, the Kurds, the Georgians, the Ossetians, and the brown Afghans."⁴⁵ It may be remembered that along with the language of the "Gathas" of the Avesta, and that of the Old Persian Achaemenian inscriptions, the tongues of the Ossetians, the Kurds, the Persians etc., have been grouped by the philologists among the "Iranic" group of tongues.⁴⁶ We may remember that the modern Armenian, whose literature goes back to the fifth or sixth century A.D., belongs to the "Indo-European" family of languages, and that, above all, it is intermediate between the "Grecian" group of tongues and the "Iranic" group of tongues.⁴⁷

It is in this context, that the following quotations from Prof. J. de Morgan become significant: "When we leave the Mediterranean to penetrate into the heart of Asia in northern Persia, Trans Caucasia and Siberia, we are confronted with two quite distinct artistic conceptions, one corresponding to the copper and bronze industry of the dolmens of northern Iran, and having only a simple decoration, the other having animal figures as its principal decorative motif. This latter art is met with in Ossethia, in the Russian and Persian Talish, and in Russian Armenia, in association with iron."⁴⁸ Elsewhere, he amplifies the same topic thus: "A very different civilization from that of the oldest sculptures appears in Russian Armenia during the Iron industry, and this culture, though modified in a number of details, reappears both in Russian and Persian Talish and Ossethia, and even in Daghestan. It is characterized by its human and animal representations, of which both technique and style in all these places seem to derive entirely from the geometric style. In Ossethia, this culture would not seem at that time to have used iron industrially, all the weapons being made of bronze; but this is apparent only, for the predominance of copper among the Ossetes is simply and solely the result of the near neighbourhood of rich mines of this metal. In Armenia the same culture comprises iron, silver and lead. The pottery in all these regions has the same technique of ornament—it is incised.

45. P. Topinard, *Anthropology*, (1894), p. 457

46. Childe, *Iranians*, p. 6.

47. I. Taylor, *The Origin of the Aryans*, p. 2; E.B. (14), II, p. 383*i.*
(On "Armenian Language"). "Armenian is the continuation of a group of Indo-European languages, intermediate between Indo-Iranian (*Aryan*) and Greek, but distinct from both."

48. De Morgan, *Pre-historic Man*, p. 219.

often very carefully, and polished—and both in Armenia and Persia, it presents animal shapes, something quite new in these parts.”⁴⁹ It is possible to connect the culture, described in these two quotations, with the Armenian tribes, like the Hittites, the Mitannis, the Urartians etc., and the ancestors of the modern Ossetians, Persians etc. The similarity of the early Iron Age pottery of the Armenians and the Persians would also indicate the direction of the spread of the “Aryans”.

We shall now turn our attention towards the West. Long ago, Dr. Isaac Taylor pointed out: “The Armenians are believed to have been an eastern extension of the Phrygians, who themselves have been identified with the Briges of Thrace Phrygian and Thracian might have bridged the gulf between Armenian and Greek.”⁵⁰ The historical significance of this linguistic phenomenon of the nearness of the Phrygian and the Armenian tongues has become clear only on account of later researches. We also know that these Phrygians, whom we have identified in *The Mother Goddess* (following a number of Indian scholars) with the Bhrigu, played a very prominent part in the religious and political history of the ancient Indians and the ancient Iranians.⁵¹ Our further contribution in that work relates to the connection between the Phrygians and the Greeks (or Ionians), which is found both in the western literature and in the Indian literature. We have also shown that the tradition among the Indians about the Bhargavas, or a Bhargava, destroying the whole race of the Kshatriyas, actually echoes the historical fact about the destruction of the Hittite empire at the hands of the Phrygians.⁵² But we failed in that work to notice certain other plausible identifications, that have been suggested long ago, but that we unfortunately persisted in rejecting while writing that work. We shall turn to them now.

The Mitannis and the Phrygians

One such identification relates to a tribe that appears to have clashed with the Hittites very frequently, and that probably assum-

49. Ibid., p. 132.

50. *The Origin of the Aryans*, pp. 267–268. Cf. E. B. (14), XVII, 851 ii:—“Another Greek tradition that the Armenians were an offshoot of the Phrygian stock, is supported by the resemblance of the Phrygian and the Armenian tongues.” Also ibid., p. 853. i:—“The alphabetic script of the Phrygians bears a closer resemblance to archaic Greek than to Phoenician, The tongue, which may be best studied in the fairly numerous texts (mostly epitaphs) of the early centuries A.D., is akin to Armenian.”

51. M.G., pp. 227f., 230f., etc.

52. Ibid., p. 235f.

ed different names in different historical periods. Thus, we know the hordes of this tribe in most of the second millennium B.C. as the Mitannis, which name disappears in about the 12th century B.C. It is about the same time that they begin assuming the name *Phrygians*, which is known under the variants to both the branches, western and eastern, of the "Indo-Europeans". Much confusion has been created by the supposition that the language of the Mitannis was Semitic and not "Indo-European";⁵³ and it is this fact that was also mainly responsible in our viewing the identification of the Mitannis and the Phrygians as an impossibility, when we wrote *The Mother Goddess*. But do we not come across here peoples that appear to be racially akin to each other and linguistically belonging to different groups of languages, especially the Semitic and the "Indo-European"? Hence, it is not impossible that a section of the Mitannis, originally an "Indo-European" tribe, may have mixed and mingled with the Semites, and that the Tell el-Amarna and other letters of the earliest Mitannian kings belong to such a section, wherein the Semitic element may have predominated in lower strata. We must not also forget that these letters were written to Semitic peoples or kings, and that they had, therefore, to be written in a language that could be understood at the other end: To the Egyptians, the language of the Babylonians and the Assyrians was undoubtedly much more familiar than the "Indo-European" language of the Mitannis. Nay, even in the court of the latter, the language of the Babylonians, like numerous other elements of their culture, may have been adopted for official purposes, to enhance the dignity of the court. Such practices are well-known from histories of many a nation, that was politically dominant but culturally backward.

It was in about the 12th century B.C. that the Mitannis conquered the Hittites and destroyed their empire, which was the third greatest power for a long time in the ancient world—i.e., next to the Babylonians and the Egyptians. When they conquered the Hittites, the Mitannis settled in Cappadocia, which was till then occupied and ruled over by the Hittites. It is here that the earliest inscriptions of the Phrygians are to be found, and it is the Phrygians that get in literature the credit of having destroyed the Hittites. Since we can by no means judge the accuracy of the statements of different writers who supply us with the material about the identification of the Mitannis and the Phrygians, we shall only place the material before the reader: "The expansion of the

53. Childe, *Aryans*, pp. 21f., 212, etc.

Phrygians into eastern Asia Minor," states one authority, "is proved by the discovery of an inscription in the Phrygian language at Tyana in Cappadocia. The text, it is true, does not appear to be of earlier date than the 8th century B.C. But the presence of Phrygians on the borders of the Euphrates may perhaps be inferred from Assyrian records which relate victories by Tiglath-Pileser I (c. 1120 B.C.) and by Sargon (717-709 B.C.) over a tribe named the Mushki. The fact that in one of Sargon's inscriptions the chief of the Mushki bears the name 'Mita' suggests that the Mushki were Phrygian, or at least had Phrygian rulers, for 'Mita' or 'Midas' was a common name among the kings of Phrygia proper."⁵⁴

Another authority, Prof. D. G. Hogarth, informs us that it was Ashshurbanipal (668-626 B.C.), who fought against "Mita, king of the Mushki." He identifies him with Midas, the last king of Phrygia, mentioned by Herodotus, adding that "Mita of Mushki and Midas of Phrygia coincide well enough in date; both ruled in Asia Minor, both were apparently leading powers there; both fought with Gimirrai or Cimmerians."⁵⁵ It will be seen that these two authorities differ somewhat among themselves about the king or kings, that fought "Mita, king of Mushki", but that their statements can be reconciled by the supposition that a number of kings fought "Mita", which can, thus, be taken as a common name among the kings of Mushki, as stated by the former authority. Indeed, Prof. Hogarth himself states: "they (the Mushki) had kings of the name Mita, which is thought to be identical with the name Midas, known to early Greek historians as borne by kings of Phrygia."⁵⁶ He further informs us that it was the Mushki or Mushkaya, a tribe of the Mitannis, that overthrew the empire of the Khatti, Hatti or Hittites, and that "since the ethnic "Mitanni" of north Mesopotamia means "Mita's men" that name must have long been domiciled much farther east."⁵⁷ Lastly, we venture to suggest that the Mushki are to be probably identified with the Mushikas, who were a section of the Bhrigus.

The importance of the Mitannis may, perhaps, be indicated by the fact that at least three Mitanni princesses were wedded to the Egyptian Pharaohs. It was probably when the Hittites were at the

54. E.B. (14), XVII, p. 852. i; cf. Childe, *Tryans*, pp. 63; 468f.; etc.

55. D. G. Hogarth, *The Ancient East*, (1945), p. 96f.

56. *Ibid.*, p. 45.

57. *Ibid.*, p. 46. In Keralotpatti, an ancient Tamil work, Parasurama, a sage of the Bhrigu tribe, is credited with having created Malabar with its four khandams, viz. Tulu, Kupaka, Kerala and Mushika—which were the names of countries inhabited by peoples of those names. See V. Rangacharya, *Pre-Musalmān India*, Vol. II, pt. I, p. 545. Vide supra, pp. 50-1.

height of their power, in c. 1360 B.C., that the Mitannis concluded a treaty with them, invoking *inter alia* what have been definitely identified as Vedic divinities: In-da-ra (Indra), U-ru-v-na (Varuna), Mi-it-ra (Mitra) and Na-sa-at-ti-i-ia (Nasatya). The discovery of the cuneiform tablet, containing the treaty, at Boghazkeui, is supplemented by that of four tablets, dealing with chariot-riding, found at the same place, and these contain expressions like *aika-vartanna*, *tera-vartanna*, *panza-vartanna*, *shatta-vartanna*, *nav-vartanna* etc., which signify in (corrupt) Sanskrit one, three, five, seven and nine circuits or turnings. These documents are written by a Mitanni, named Kikkuli, who served at the Hittite court. "In addition, the inscriptions mention a class of military nobility, the so-called 'mariannu', who play an important role in Syria and Khurri-Mitanni, and whose name is derived from the old Indian *marya*—'young man, hero'."⁵⁸ The names of some Mitanni-Khurri kings, found here, are Tushratta, (Dasaratha), Artatama (*Ritatama*), Suttarna or Shutarna (*Sutarnas*), Mattiuza (*Mativaja*), Artasumara (*Ritasmara*),—which are certainly Indian (or Vedic) names. A number of other Indian names, many Iranian names and some half-Indian and half-Iranian names are found in the Tell el-Amarna letters along with these names. "Among the dynasts of Syria and Palestine whose correspondence to their sovereign, the Pharaoh of Egypt, is preserved in the archives of Tell el-Amarna (about 1400 B.C.), many bear Iranian names, e.g., Artamanya, Arzawiya, Shuwardata, and their portraits are represented in Egyptian reliefs (e.g., in the tomb of Harem-ham), totally different from those of the Semites and the Hittites."⁵⁹ These portraits are supposed to represent more "European-like" (Alpine or Nordic?) features than those of the Hittites.

In any case, the connection of the Indo-Iranians (or "Aryans") and the Mitannis may be substantiated also by such facts as the following: "The chief centres of the Persian cults in the west were the district of Achilisene in Armenia (Strabo, XI, 532, etc.), the town of Zela in Cappadocia (Strabo, XII, 559), and several cities in Lydia."⁶⁰ Thus, those very regions from which the Phrygians of the Grecian literature hailed and from which they carried some of their important cults, e.g., that of the Phrygian Mother Goddess,⁶¹

58. E.B. (14). XI, p. 604. ii. See also Childe, *Aryans*, p. 18f.; CAII, I, p. 72, 76, 320-321, and fn.; etc. *Proceedings, Indian History Congress* (1947. Bombay Session), p. 47; etc.

59. E.B. (14). XVII, p. 566 i

60. Ibid., p. 570. ii

61. M.G., p. 60, etc. Read especially ERE, IX, 900. i-ii.

appear to have provided some holy places of worship also for the Persians of old.

In *The Mother Goddess*, we have drawn attention to a number of factors, connected with the religion of the Hittites, which conclusively prove them to have been a branch of the Indo-Europeans, closely connected with the Vedic Aryans. We have noticed that they wore their black hair in pig-tails or sikhlas.⁶² On some Egyptian monuments, these pig-tails appear to resemble the sikhlas, worn by many orthodox Maharashtrian, Kannoji and other Brahmanas, and also some Hindus of other castes.⁶³ In the Egyptian representations, excepting for these pig-tails, the Hittites are completely well-shaven all over the head. On the other hand, there are some other representations found on their own monuments, and in these the Hittites are represented as putting on pointed head-gear, from beneath which their long tails are represented as falling in curls. In these sculptures, we find them wearing curious-looking shoes, that have their forward tips turned up.⁶⁴ In this respect, they greatly resemble the peculiar sandals of Poona, known throughout Maharashtra and elsewhere as the "Puneri jodas", that were popular there among the gentry less than a quarter of a century ago. These peculiar sandals were worn in Maharashtra by persons of both the sexes, just as they are found represented on the Hittite monuments as being similarly worn by both men and women. In connection with the practice of shaving their heads very closely, it may be stated that they could accomplish this without much trouble, only because they were now able to manufacture iron razors. With copper or bronze razors, such a practice could—there is reason to believe—hardly have originated. Their building up of the first Iron Age empire necessitated an improvement in their system of communication, which they achieved by paving high roads running across their country. This was also made possible probably by their discovery of iron.⁶⁵

In the end, we may also draw attention to the fact that even as Egypt and Mesopotamia owed their knowledge of iron to the Hittites, so also did the Greeks. As Prof. V. Gordon Childe states: "The iron and the Hittite cylinder betray contact between Greece and Anatolia, just as do the cuneiform records."⁶⁶ It is interesting to note in this connection that the same upheavals, mentioned in

62. M.G., p. 231-237, especially see p. 234.

63. See Maspero, *The Struggle of the Nations*, p. 357.

64. See Garstang, *Land of the Hittites*.

65. Ibid. Also, Wells, p. 308.

66. Childe, *Hittites*, p. 48.

the Egyptian records, which some authorities have connected with the end of the Bronze Age and the beginning of the Iron Age on account of the introduction of the iron weapons in the east Mediterranean (or *Aegean*) world,⁶⁷ have been, equally plausibly, connected by some other authorities (including Prof. V. Gordon Childe), with the advent of the Aryans in those regions. Says Prof. Childe: "It is impossible to leave the question of the Aryani-zation of the Mediterranean without making some reference to the foreign invaders coming from the North who are mentioned and depicted upon Egyptian monuments between the XVth and XIIth centuries. The Pharaohs of the XIXth and XXth Dynasties had to repel from the shores and frontiers of their empire fierce invasions. The assailants betoken the intervention of a new racial element in the Mediterranean world. Their facial types are strange to the older monuments, and they brought with them a new armament. There is no doubt that the appearance of these invaders on the Egyptian coasts was due to disturbances on the northern shores of the Mediterranean; the later Pharaohs expressly state that Peoples of the Isles were restless. It is highly probable that this restlessness was the reflex of the intrusion of Indo-Europeans or fresh bands thereof from more continental regions."⁶⁸ He, however, adds: "Yet the exact relation of these events to our problem is still obscure."⁶⁹ We thus see that Prof. V. Gordon Childe was himself quite near the solution of the problem about the Aryans, which lies in their connection with the introduction of the Iron Age: but unfortunately, he left this line of enquiry somewhat abruptly, so that to him the problem became "obscure".

67. Vide supra, p. 324.

68. Childe, *Aryans*, p. 72.

69. *Ibid.*

CHAPTER XVI

LITERATURE, A PRODUCT OF THE IRON AGE

IT is a curious and striking fact, that a majority of peoples, nations or tribes, that have left some of the earliest literature throughout the ancient world, belong to those, who used a tongue pertaining to the "Indo-European" family of languages, or were in contact with those, who used it. Another fact, no less curious and striking, is that almost all these peoples, nations or tribes appear from their earliest literature to have been familiar with the use of iron. It is but natural that scribes should get sufficient leisure and material to compose anything like sizable literature for the first time, only by the end of the Bronze Age or the beginning of the Iron Age. We cannot imagine such an advanced state of material prosperity, on archaeological ground, in the Copper Age, much less in earlier times. In other words, literature on a mass scale bespeaks the leisure of the scribe, and therefore, it can be plausibly argued that no sizable literature could be produced at any period prior to the beginning of the Bronze Age, and that even in the earlier days of the Bronze Age, it must have been well-nigh impossible to compose such monuments of literature as the *Rik-samhita* or the *Iliad*. Hundreds of poems could never have been committed to memory before they were put into writing. It is scarcely possible to compose a whole *sukta*, even for a poetic genius and remember the whole of it correctly, after its completion. It is, therefore, preposterous to suppose that either the Homeric ballads or the Vedic *suktas* were sung all at once in whole lots, as soon as they were composed, without being committed to writing. In this connection it is noteworthy that even some orthodox Sanskritists, while preferring on astronomical grounds to antedate the hymns, have often sought to prove, quite sensibly, that actual reference to writing is available in the *Samhita* of the *Rig-veda*.¹ As to their "astronomical grounds," we may add here only in passing that (as pointed out by us in *The Mother Goddess*), they conveniently ignore the innumerable similarities between the religion of the Vedic Aryans and that of the ancient civilized peoples of the

1. Cf. Kshetresh Chandra Chattopadhyaya, *Reference to Writing in the Rig-veda-samhita*. (See *Poona Orientalist* Vol. I, p. 47f.)

West, especially in respect of such astronomical data, and that they overlook the fact that such astronomical data may be handed down for many millenia, as is the case in many countries.

Beginning of Iron Age in Grecian Literature

In view of the fact that the earliest literature may be considered as a product of the (late) Bronze Age or of the (early) Iron Age, it is no matter for wonder that it reflects the conditions that prevailed during this age. As noted above, bronze appears in the *Iliad* as the most popular metal, often utilized for the weapons of war. But iron also "plays a considerable part in the *Iliad*.² According to Homer, both the Trojans and the Achaeans were well-acquainted with iron.³ The Homeric age is generally quite aptly called the "heroic age" in Greece. In the *Odyssey*, there is a clear indication of the ushering in of the Iron Age, when the author of that work pithily observes:

"The mere gleam of iron lures a man to strife."⁴

As a quotation from Childe (given above) points out, the Homeric age represents a period of "venture" of Iron Age imperialism—not merely in the sense that it witnessed the destruction of Troy at the hands of some Hellenic tribes acquainted with iron, but rather in a much more profound sense. Besides copper, bronze and iron, Homer mentions four metals, viz, gold, silver, lead and tin. One authority states: "Homer, like Hesiod, knows of a time when 'black iron was not', except indeed as a material for tools, clubs, arrowheads and other easily workable objects."⁵ In this context, we may remember that Hesiod "described the five ages of the world—gold, silver, bronze, heroes or demi-gods, and lastly iron, in which he lives"⁶ This would, perhaps, show that in his opinion, the "heroic age" represented something of a transitional period between the Bronze Age and the Iron Age—a period, when the Iron Age had not set in fully and squarely. According to Hesiod, the sword of Heracles was of iron: This must have been the case with many a sword of the time of the "heroic age" of the demi-gods.

² I. Taylor, *The Origin of the Trojans*, p. 144.

³ Childe, *Irvans*, p. 53.

⁴ *Odyssey*, xvi. 204; xix. 13.

⁵ *Supra*, p. 324.

⁶ E. B. (14), XI, p. 691. i

⁷ Clodd, *Primitive Man*, p. 34.

The Old Testament

The Old Testament, which belongs to the uneasy days of the beginning of the Iron Age, reflects the uneasy conditions of the time. Like the Iliad, it may also be said to represent the "heroic age"—of the Semitic. In the Old Testament, in addition to helmets and spears, we find a number of articles made of copper, including chains, mirrors, lavers etc. There is also a "bow of copper"⁸—not of steel, as is sometimes supposed—that is mentioned in some passages. As to the bronze—which is mentioned also in the authorized translation of the Bible as "brass"—we find it being used for a variety of objects, including defence-armour (e.g. helmets, shields etc.), objects of worship (e.g. idols, altars, serpents etc.), pots, shovels, gates, cymbals, fetters, pillars, and other sundry things. There are quite a number of passages in which bronze is associated with iron. One such would make Tubal-cain an instructor in bronze and iron, while some others speak of others being adept (or "cunning") in working bronze and iron. In one passage gods are referred to as being made of silver, bronze, iron and wood. It is clear that the Iron Age was gradually coming into prominence during the time of the composition of the Old Testament—we refer especially to the earlier portions of it, from which the fore-going material has been collected. We also often come across references to vessels of bronze, although mention of vessels of gold and silver is by no means lacking. Quite a majority of utensils must have been of pottery, as is clear from constant reference to the "earthen vessels". References to some ornaments like the ear-rings, "nose-jewels" (or "an ornament for the nose"), etc., are also found in the early portions of the Holy Bible. Along with gold and silver, copper and bronze may well have been used—the latter especially by the commoners—for the making of these ornaments.

About various uses to which iron had been put already by the time, represented by the early portions of the Bible, we learn: "Some of the uses of this . . . metal were probably known at a very early period. (Gen. iv. 22). We find it mentioned as the material for tools (Deut. xxvii. 5; 2 Kings vi. 6), weapons of war (2 Sam. xvii. 7), furniture (Deut. iii. 1), implements of husbandry (2 Sam. xii. 31; Jer. xxviii. 14), and chariots of war. (Josh., xvii. 16; Jdg., i. 19; iv. 3)."⁹ We learn that "the iron chariots of Sisera in

8 UBD, p. 111

9 Beeton's Shilling Bible Dictionary, p. 117.

the days of the Judges gave the Canaanites an enormous advantage over the Israelites (Joshua, xvii. 16; Judges, i. 19)."¹⁰ Another authority states: "Yet in the Pentateuch we find references to its (iron's) great hardness (Lev., 20.19; Deut. 28.23,48); to the iron bed-stead of Og, king of Bashan (Deut., 3.11), to mines of iron (Deut. 8.9); while the severity of the servitude of the Israelites in Egypt is compared to the head of a furnace of melting iron (Deut., 4.20). We find also that swords (Num., 35.16), axes (Deut., 19.5) and stone-dressing tools (Deut., 27.5) were made of iron."¹¹ David is said to have collected quantities of iron for building Solomon's temple, which was, however, built, for ritual purposes, without the aid of iron implements.¹²

The introduction of the Iron Age effected considerable changes in practically every sphere of life. How it meant an immediate increase in the spread of commerce is best illustrated by a famous Biblical passage from which the following portion is quoted: "Fine linen with broidered work from Egypt was that which thou spreadest forth to be thy sail; . . . They of Persia and of Lud and of Phut were in thine army, thy men of war; they hanged the shield and helmet in thee; . . . Tarshish was thy merchant by reason of the multitude of all kind of riches; with silver, iron, tin and lead, they traded in thy fairs Javan, Tubal, Meashech, they were thy merchants; they traded . . . vessels of brass (bronze) in thy market . . . Syria was thy merchant by reason of the multitude of the wares of thy making; they occupied in thy fair with emeralds, purple and broidered work, and fine linen, and coral, and agate . . . Dan also and Javan going to and fro occupied in thy fairs; bright iron, cassia, and calamus, were in thy market . . . The merchants of Sheba and Raaman, . . . occupied in thy fairs with chief of all spices and with all precious stones and gold. Haran and Cannen, and Eden, the merchants of Sheba, Asshur and Chilmad were thy merchants . . . in all sorts of things in blue clothes, and broidered work, and in chests of rich apparel, bound with cords, and made of cedar, among thy merchandise."¹³

Out of the countries mentioned in this passage, the most interesting one appears to us to be Tarshish or Tharshish, which is represented as "one of the chief (and most remote) settlements of the Phoenicians"¹⁴ in the Old Testament. At one place we find

10. E.B. (14), II, p. 252 ii.

11. UBD., p. 216.

12. E.B. (14), II, p. 252 ii.

13. Ezekiel, 27.7-24.

14. UBD. p. 465

that "once in three years came the navy of Tharshish, bringing gold, and silver, ivory, and apes, and peacocks."¹⁵ Some of these products are so typically Indian that one cannot but suppose that some part of India must have been meant. Where else could elephants and peacocks be found together? As to the Phoenicians and their identification with the Panis mentioned in the Vedas, sufficient material has been given in *The Mother Goddess*.¹⁶ We also learn from the Old Testament of huge quantities of gold that David and Solomon received from the country of Ophir, which is identified (we believe, wrongly) by many Indian and foreign scholars with the country of Sauvira (in the Indus valley), so well known in ancient Indian literature. Be that as it may, the afore-quoted passages and others sufficiently prove that direct trade relations had been established in the early part of the Iron Age, between Syria-Palestine (or the Mediterranean countries), on the one hand, and India, on the other.

Confucian Classics

Another country that possesses early literature of the beginning of the Iron Age is China. In China, we have reason to believe that the dynasty of the Chous that established itself on the imperial throne at the expense of the Shangs, did so on account of the superiority of their weapons "They came from the Wei River valley, from the heart of the Shensi Province—a rich agricultural district 350 miles WSW of An-Yang,"¹⁷ and they brought with them the use of iron. The last king of the Bronze Age dynasty of the Shangs is represented as being so extravagant (from the viewpoint of the contemporary standard) as to indulge in the use of the "ivory chopsticks"; and he was also compelled to invent with the help of his charming, but cruel wife, such new methods of punishment as the "Heater" and the "Roaster"¹⁸ Nothing, however, could save him.

The earliest written literature of this country (viz the five Confucian classics) belongs to the period of about the end of the Chou dynasty, and primarily embodies the literary efforts and compositions of the early Chou period, besides, of course, those

15. I Kings, 10.22

16. M.G., p. 144 f.

17. H. G. Creel, *The Birth of China*, p. 220

18. Rev. J. MacGowan, *Imperial History of China* (2nd edn. Shang-hai), p. 38 f.

of Confucius (Kung-fu-tse) himself. If we examine one of these texts, viz. the Shih Ching (or She King, as Legge would spell it), or the Book of Poetry, wherein we find all sorts of poems collected in the earliest *secular* anthology of the world, we indeed come across only a few incidental allusions to metals of any sort. There is a reference to the "metals from their mines they (=the southern tribe of the Huei, or Legge's Hwae) dig."¹⁹ Elsewhere we are told of the "vessels, formed of metal and of jade".²⁰ At a third place, we come across the expression "pure as the finest tin or gold",²¹ and at a fourth, a reference to the "gilt vase".²² We have been able to find only two references to iron in this text; but this fact itself is sufficient to show that here we are only in the beginning of the Iron Age. What is noteworthy is that the Chous did not altogether leave off their claims over the iron mine regions west of the river Wei from where they came: This we learn from such an incidental reference as the following:

"Ere long the Wei in boats he crossed, to win
Whetstones and iron."²³

Another incidental allusion is the following:

"Our ruler to the hunt proceeds;
And black as Iron are his steeds."²⁴

We may also quote here a few passages, which mention some of the most important weapons and tools that the Chinese of the Chou period (the 'heroic æ' of China) possessed:

- (1) "The ready further with his weapons all,
Bows, arrows, shields, spears, axes great and small,
His people to the march he forth did call.
. . . Lo! at his girdle-pendant seen,
The jade, and gems of yaou, emit their sheen!
Sheathed in its glittering scabbard hangs the sword."²⁵

19. Legge, *She King*, IV ii 3.8

20. Ibid., III.i.4.5.

21. Ibid., I.v.1.3.

22. Ibid., I.i.3.2.

23. Ibid., III.ii.6.6. Cf. Supra, p. 360.

24. Ibid., I.xi.2.1 Cf. the word 'Karshnayasa'

25. Ibid., III.ii.6.1f.

- (2) "With measured steps move the mail-covered team.
The trident spears, with gilded shaft-ends gleam.
. . . The bow-case, made of tiger's skin, and bright,
With metal plates, lies ready for the fight.
It holds two bows which bamboo frames secure."²⁶
- (3) "We splintered our axes, and brought
Our hatchets all to the same plight . . .
Our axes and chisels we broke . . ."²⁷
- (4) "As knife and file make smooth and bone,
As jade by chisel wrought, and stone, . . ."²⁸

References to "dragon-figured" or "feather-figured" shield, to spikes and archer's thimbles being made of ivory etc., would reveal the contemporary art as connected with weapons of war.²⁹ Another instance of their artistic achievements was perhaps to be seen in their banners, which we often find described in the Shih Ching:

" . . . on his banners shone
Snakes, tortoise, dragon, as he led them on."³⁰
". . . on banners falcons fly,
Displacing snakes and tortoises."³¹

All these references to weapons, banners etc., reveal the existence of the colourful heroic age in China too. Keeping in mind the analogies provided by the western countries, that age must be equated with the early days of the Chou dynasty, when iron weapons ushered in a vigorous imperialism. The Book of Poetry also refers to music, vocal as well as instrumental. Drums, lutes, flutes, bells etc.,³² are some of the most ancient musical instruments in China. The work also refers to ear-plugs, made of different stones, like the *yung*, the *ying* etc. Some idea about the dress of the elite could be gathered from examples like the following:

"With head-dress high, cross pins, and jewels rare:
. . . Her robes the various figured forms display."³³

26. *She King*, I.xi.3.3.

27. Ibid., I.xv.4.1f.; cf. I.xv.5.1; I.xv.1.3.

28. Ibid., I.v.1.1.

29. Ibid., I.xi.3.1f.; I.v.6.1f.

30. Ibid., II.iii.4.2.

31. Ibid., II.iv.6.4.

32. Ibid., Ixii.1.2-3; II.i.1.1; II.v.5.7; IV.iii.1; I.x.2.3; etc.

33. Ibid., I.iv.3.1f.

"Her pheasant-figured robe resplendent shines,
 . . . Then see her ear-plugs, of the precious jade;
 Her comb-pin, of the finest ivory made; . . ."

There is also sufficient evidence to prove that the Chous accepted all the socio-political institutions, laws and regulations of the Shangs.³⁵ And quite contrary to what Dr. Creel supposes to be the case, they developed considerably the culture that they borrowed from their predecessors. It may, however, be admitted that they had originally a less developed culture than that of the Shangs, just as the Hittites had lesser cultural attainments than those of the inhabitants of the Nile or the Euphrates. "In the earliest pieces of it (the Book of Poetry), as well as in the latest, we have abundant evidence of the low status which was theoretically accorded to woman and of the practice of polygamy."³⁶ The births of sons and daughters were received differently.³⁷ The very first Chou emperor, Wu Wang, is credited with having introduced "the titles of Kung, How, Pih, Tsze, and Nan, which may most conveniently be expressed by duke, marquis, earl, count or viscount, and baron."³⁸ This tradition may be interpreted to mean that there was some substantial development in the political field during the early Chou period on account of the introduction of the Iron Age. It is from the Chou period onwards, that we come across a large number of inscriptions on bronze vessels. Most of these Chou bronzes belong to the courtiers or officials of the Chou emperors.³⁹ It is during the regime of the Chous that the history proper of China begins, and it is the full development of the Iron Age civilization of the Chinese that we find reflected in the earliest and one of the most important collections of literary records of ancient China. In the end, we may recommend to the reader Dr. H. G. Creel's *The Birth of China* for a more detailed study of the civilization of the early Chou period.

Thus, a careful perusal of the earliest literature throughout the ancient world outside India would show that this literature was produced not by the end of the Bronze Age, but in the beginning of the Iron Age. Theoretically, however, there is nothing to

34. *She King*, I.iv.3.11.

35. Ibid., I.v.1.2; I.viii.3.2-3.

36. Ibid., Prolegomena, p. 53.

37. Ibid.

38. Ibid., p. 45; cf. MacGowan, I.c., p. 42

39. Creel, p. 261.

stand against the former obtaining the credit for this aspect of civilization. As seen above, semi-alphabetical writing was being slowly introduced in the late Bronze Age itself. There is little doubt that the production of literature on a mass scale was made feasible by the introduction of alphabetical scripts, which itself must have been the result of a greatly increased trade. Even if the credit of inventing a perfected alphabetical script may belong to the Phoenicians of the Bronze Age, the actual available evidence appears to show that alphabetical writing was probably not used for big literary pieces till the introduction of the Iron Age. In the case of China, where alphabetical writing never came into existence, such literary pieces could not be produced without the wealth and leisure that could be obtained after the introduction of the Iron Age.

CHAPTER XVII

BEGINNING OF LITERATURE AND IRON AGE IN INDIA

THE earliest literary documents of India, viz the *Vedas*, are undoubtedly of inestimable value and importance for the study of the early culture of India. Further, quite a unique position among them is occupied by the *Rig-veda*, which is also unique in the whole literature of the ancient world in a number of ways, even as the Chinese Classics are in their own way. We are not concerned here with this earliest masterpiece of ancient Indian literature in respect of its poetic excellence, the perfection of its diction, the advanced stage of grammatical structure betrayed by the inflections in its language, the mobility of its language, the highly religious sentiments or the lofty metaphysical speculations contained in many of its 'suktas' etc., so that whatever we have to say as regards their date and those other problems, with which we are concerned here, need not be taken to detract the real merits of these masterpieces. Again, it must be made clear that while examining the problem of the date of some of the Vedic works, we are here concerned mainly with the archaeological aspects of this problem—which have been unfortunately the most neglected ones. Determining the antiquity of this work and that of the other *Vedas* and *Brahmanas* etc., has much "charm" or attraction about it for a number of Indian Indologists, so much so, it has, indeed, become a pastime with some of them. As stated by us in *The Mother Goddess*, some of these scholars venture to throw overboard not only all archaeological, but even anthropological and geological evidence, when they use astronomical figures in speaking of their dates. Looking archaeologically at the chronological problem, we come face to face with the basis of the material culture of the period, to which the *Vedas* belonged, and which is naturally reflected in the incidental references found in the "suktas".

Now, this problem concerning the date of the composition of the *Rig-veda* and other *Samhitas* is inextricably connected with another, viz that concerning the relations that existed between the authors of the Indus valley civilization and the Vedic "Aryans". Both these problems have been tackled by us on some previous occasions, and the conclusions arrived at by us on some of these

(especially earlier) occasions, however imperfect and different from those advocated in this work, deserve thrashing out even today, and may not be deemed altogether improbable or unsound even now. These varying viewpoints are obviously different avenues, one of which may, perhaps, ultimately lead to the correct solution of these problems. And we may assure the reader that we still bear in our mind this consideration despite the fact that we are strongly advocating a new viewpoint in these pages, based more on archaeological considerations than on anything else.

Our previous opinion about the date of the *Rig-veda* was expressed mainly in *The Mother Goddess*, and also very briefly in our Marathi pamphlet on the Indus valley civilization. In the latter, we have pointed out that whereas the Indus valley people never knew of the use of iron, the Vedic people did,¹ and that, according to modern research, the period covered by the Indus valley civilization extended roughly from 2,500 B.C. to 1,500 B.C.² i.e., roughly about the same period that is assigned to the composition of the *Rig-veda-samhita* by what is considered to be a moderate school of Indian research-workers in the field of Vedic studies. It is well-known that the region occupied by the Vedic Aryans included practically the whole of the area covered by the Indus valley civilization, besides Kashmir (*Kasmira*), and, in the later days, some extensive territory towards the east. This particular circumstance can plausibly be explained differently, either by supposing, as the moderate school does, that the authors of the Indus valley civilization are identical with the *Rig-vedic* Aryans, or by supposing that they were the predecessors of the latter. The extreme view that they were the successors of the authors of the *Rig-veda-samhita* looks improbable; i.e., that they were identical with the authors of the later *Samhitas*, that mention the use of iron, is archaeologically untenable. In *The Mother Goddess*, we hesitatingly followed the moderate view that the Indus valley people probably used a language akin to, though, perhaps, not identical with, the Vedic Sanskrit³. We pointed out that the Sumerians of the Uruk period, the Hittites, the Phrygians etc., not only had very great affinities with the Vedic Aryans (who appear to have included a large portion of the Hittites, the Phrygians etc.), but also belonged to one and the same racial stock—that of the Armenoids.⁴ Under this theory, the "Indo-Sumeri-

1. Sindhu Nadi-varil Samskruti (March, 1946. Poona), p. 20 (In Marathi)

2. Ibid., p. 7.

3. M.G., p. 3.

4. Ibid., p. 4. 221f.

ans" (i.e. the authors of the Indus valley civilization and Sumerians) would become the first "wave" of the Aryans, belonging to the Copper and Bronze Age; while the Hittites, the Phrygians etc., would be the second wave of the Aryans, belonging to the Iron Age.

Thus, we unintentionally revived or supported the theory of the two "waves" of the Aryans, so popular among the orthodox Indian scholars. And we found support in Prof. Bedrich Hrozny's contention that the Indus script, that he claimed to have deciphered, betrayed the existence of an "Indo-European" tribe, probably that of the proto-Hittites,⁵ in the Indus Valley. While we may thus clarify our former view, we must confess that at that time we were not much inclined to accept the evidence of the contorted skulls from the Indus valley, examined by Sewell and Guha, in view of some strong objections raised against their method and results by some younger anthropologists. It is not, however, altogether impossible to reconcile the conclusions arrived at by these two scholars with those given in our former work, *The Mother Goddess*. The former are compatible with the supposition that there existed in the Indus valley, as in Mesopotamia, not only the "Indo-Europeans" (e.g., the Sumerians, the Hittites, etc.), but also a Mediterranean-Dravidian race—a fact which is suggested, if not quite explained, in that work. Complex historical data must, no doubt, be explained by complex theories; and even in this work, we may not be altogether able to do away with the theory of plurality of races in the Indus valley.

Thus, even today it is possible to hold that some of the authors of the Indus Valley civilization may have belonged to the speakers of one of the various groups of the agglutinative tongues—one such group, the Dravidians, leaving in this locality during some remote pre-historical period, that noteworthy phenomenon of the isolated language of the Brahuis. The commercial relations that we find established between the Indus Valley and Mesopotamia make it probable that some of the Indus people spoke the Akkadian, or possibly a proto-Phoenician Semitic language. The relations between the Indic people and the Sumerians must have been, according to all evidence, equally intimate and the Sumerians belonged to the Armenoid stock. Thus, it is possible to hold that the Sumerians and the Akkadians of Mesopotamia had their counterparts in

5. M.G., p. 3; I.H.Q., (1940), p. 683f. It must be admitted that our tentative attempt at deciphering some of the letters on the Indus seals, given above, p. 298, would likewise support the theory about the "Aryans" being the authors of the Indus civilization, rather than any other.

some Armenian and Dravidian races, speaking mixed or many dialects, in the Indus Valley.

But a great problem is presented by the fact that the script, found on the Indus Valley sites is one and uniform, although the seals containing it hail from distant places. This fact speaks at least for the uniformity of the language, spoken all over the Indus Valley. It is also a question if people of diverse languages could have produced what appears to be such a uniform culture over such a vast area. One of the surest ways of attacking the problem concerning the relations between the authors of the Indus Valley civilization and the Vedic Aryans is that which relates to the material basis of the cultures of these two peoples, or, in other words, which represents the archaeological point of view. It is to this, rather than to any other, that an archaeologist has to turn, for a final decision of his problems. In the light of these facts, we have to modify the views expressed by us in *The Mother Goddess*.

Rig-veda-samhita, a Document of the Bronze Age?

As to the knowledge of metallurgy, exhibited by the Vedas, we must make it clear that no detailed study thereof is intended here. We shall only draw the reader's attention to some of the most important passages exhibiting such knowledge. That smelting was a common practice with the Vedic Aryans, as with the Indus Valley people, in the manufacture of metal objects, is made clear by a number of allusions, including one to Brahmanas-pati,⁶ and another to the Asvins.⁷ Among the metals so smelted by the Rig-vedic Aryans the most frequently mentioned are "hiranya" (gold),⁸ and "ayas",⁹ both of which are occasionally found juxtaposed, or mentioned conjointly.¹⁰ References to "hiranya" are often found

6 R. V., X.72.2 — 'ब्रह्माणस्पानता सं कर्मार इवाधमत्।'

7 R. V., I.117.21 — 'आभ दस्यु वकुरेण धमन्तारु ज्यातश्चकथुरार्थ्य।'

Also R. V., IV.2.17 — 'सुकर्मणः सुरुचो देवगन्तो ऽयो न देवा जनिमा धमन्तः।'

8 Cf. R. V., X.121.1. 'हिरण्यगमः समवर्तताग्रे भूनस्य जातः पतिरेक आसीत्।'

R. V., I.25.13 — 'विभद्दपिं हिरण्ययं वरुणो वस्ति निर्णिजम्।'

9. R. V., I.5.28 — 'अयच्छथा बाह्वर्जमायममधारयो दिव्या सूर्यं दशो।'

Also see R. V., IV.2.17 (quoted above in footnote 7).

10. R. V., I.163.9: 'हिरण्यशुड्गो ऽयो अस्य पादा'

R. V., I.88.5: — 'पश्यन्दिहरण्यचकानयोदंष्ट्रान् विधावतो वराहून्।'

R. V., V.62.7-8:— 'हिरण्यनिर्णिगयो अस्य स्थूणा वि श्राजते दिव्यश्वाजनीव।...'

हिरण्यरूपमुषसो व्युषावयःस्थूणमुदिता सर्यस्य।'

in connection with the description of such divinities as Savitri,¹¹ Ushas¹² and the like, and their chariots etc.¹³ This at once makes it clear that "hiranya" signifies "gold" in the Rig-veda. As to "ayas", before we take note of the Vedic references to this metal, it is necessary to quote a passage, which would help us to determine the original meaning of that word: "There is one Aryan word whose wide diffusion has to be explained, ... This is the Sanskrit 'ayas', which corresponds with the Latin *aes*, the Gothic *aiz*, the German *erz*, and the English *ore*. The Latin *aes* denoted copper as well as bronze, the Gothic *aiz* meant brass or bronze, while the Sanskrit 'ayas' is believed to have originally denoted copper, then metal in general, and afterwards iron. If copper was, as seems probable, the first metal to be discovered, it is easy to see that the name might have been generalized to denote metal, and then specialized to denote either iron, brass or bronze. In any case the original meaning could not have been iron ..." ¹⁴

This statement, together with other considerations, clarifies much in respect of the exact determination of the original meaning of the term "ayas", which is so common in the Vedas. We have already seen that the Greek word for a "smith" is derived from copper and not from any other metal—this fact leading to the obvious conclusion that copper rather than any other metal was the primary one, from the point of view of even those who were well acquainted with other metals including iron. As seen above, archaeological evidence in India, even as in other countries, favours the hypothesis that the metal mentioned so frequently in the Rig-veda-samhita as "ayas" should be looked upon as signifying the earliest-known and commonest metal, copper, rather than any other metal such as iron and even bronze. These facts are perfectly compatible with the conclusions, based on the internal evi-

11. R. V., I.35.9.—‘हिरण्यपाणिः सविता विचर्षणिः...।

हिरण्यहस्तो असुरः सुनीथः...।’

R. V., III.54.11.—‘हिरण्यपाणिः सविता सुजिह्वः...।’

R. V., I.22.5.—‘हिरण्यपाणिमूतये सवितारमुप द्वये।’

12. R. V., III.61.2; cf. I.48.9-10

13. R. V., VIII.5.28f.—‘रथं हिरण्यबन्धुरं हिरण्याभीशुमधिना।... हिरण्यी वां रभिरीषा अक्षो हिरण्यः। उभा चक्रा हिरण्या॥’

R. V., VIII.5.35.—‘हिरण्येन रथेन’ Cf. R. V. I.35.2f.; etc.

14. I. Taylor, *The Origin of the Aryans*, (London, 1892), p. 138.

dence of the Rig-vedic passages themselves. That "ayas" is associated with "hiranya" in some Rig-vedic passages, that in India copper rather than bronze found favour, according to the archaeological evidence produced above, and that the Fire-god is described in one of the Rig-vedic passages as being "ayo damshtra" (i.e., with the teeth of "ayas")¹⁵ appear to constitute together an irrefutable evidence in favour of looking upon "ayas" as copper. The description of the Fire-god as "ayo-damshtra" fits ill with the identification of "ayas" with either bronze or iron, and is quite appropriate if we take it to mean "copper". When, therefore, we get in the same Veda a reference to an arrow, as having its head made of the horn of the "Ruru" deer, and its tip of "ayas", we should naturally take "ayas" to refer to copper and not iron, as some eminent scholars have done.¹⁶ The foregoing and other references make it clear that there is no substantial reason to interpret the word "ayas" in the *Rig-veda-samhita* differently in different passages, as many eminent Sanskritists are inclined to do.

Evidence from the Barber's Craft

Thus, when the *Rig-veda* speaks of the "sharpness of ayas" (*ayaso na dharam*), it is quite legitimate to understand this as a reference to the same metal, viz copper—of which (one can imagine) sharp weapons like the dagger etc., must have been made in those days. We know that the Rig-vedic Aryans were aware of the art of shaving, to which that work frequently alludes directly or indirectly. The word "kshura" occurs no less than thrice in the *Rik-samhita*, always in the clear sense of a "blade".¹⁷ In one of these passages, "there seems to be a reference to the sharpening of a razor on a grind-stone (*bhurijos*, the dual denoting precisely, as Pischel points out, the two sides of the apparatus, between which

15. R. V., X.87.2 — 'अयोदंष्ट्रे अर्चिषा यातुधानानुपस्थृश जातवेदः समिदः '

The "teeth" are obviously the red flames of Fire.

16. R. V., VI.75-15 — 'आलाक्ता या रुक्षीष्यथो यस्या अयो मुख्यम् ।

See V.I., I, on 'ayas'.

17. R. V., I. 166.10:— 'अंसवेताः पविषु क्षुरा अधि वयो न पक्षान् व्यनु श्रियो धिरे ।'

Cf.R.V., I. 166.9.

R. V., X.28.9:— 'शशः क्षुरं प्रत्यञ्च जगार...'

the stone revolved like the modern grind-stone).”¹⁸ Pischel’s interpretation appears to have been borne out in some measure by a reference in the Atharva-veda-samhita, “where a kshura is described as moving about on the bhurijos, as the tongue on the lip.”¹⁹ In any case, the meaning of the word “kshura” in these Vedic passages, as also in some Upanishadic passages, where we come across expressions like “kshurasya dhara” etc. is quite clear, as the “blade of a razor”, with which shaving was performed. Another passage in the Atharva-veda-samhita clearly mentions shaving performed by a “kshura”.²⁰ Whether we are justified in juxtaposing the two expressions, “ayaso na dharam” and “kshurasya dhara”, and in concluding that the former expression refers to the metal of the blade of a razor, is a matter of opinion. But the references in the Atharva-veda make it quite clear that the Brahmanas at any rate had the whole of their heads shaven after the fashion of the “proto-Aryans”.

We have seen above that shaving not only the face, but the whole head, was a popular practice among the Hittites, and that this was made possible for them by their use of iron. Experts in that craft say that it is difficult to conceive the use of copper or bronze blades for the purpose of shaving the head, that even with the bronze blades shaving of the face was not altogether an easy affair and that it must have been all the more troublesome for the person on whom this craft was practised. There is no definite reference in the Rig-Veda-samhita to the shaving of the head, and it is possible that this craft was practised only on the face. But it is more legitimate to suppose that the custom of shaving the head did not originate all of a sudden in the days of the Atharva-veda, but was already current previously in the days of Rig-veda. If the Vedic Aryans shaved only their faces, whether wholly or partly, as did the Mesopotamians, the authors of the Indus Valley civilization etc., they must have been at least familiar with the blades of bronze. If they shaved their heads too, they must surely have used the blades of iron. Different practices prevailed among different countries. Thus, the Bronze Age inhabitants of Crete, though otherwise clean-

18. V. I., I. p. 200f. R. V., VIII.4.16:—‘सं. नः शिशांहि भूरिजोरिव क्षुरं रास्य रायो विमोचन।’

19. V. I., I. p. 200f. A.V., XX.127.4:—‘नष्टे जिहा चर्चरीति क्षुरो न भूरिजोरिव।

20. A. V., VI.68.1-3:—‘आयमगन्त्सविता क्षुरेणोष्णेन वाय उदकेनेहि।... येनाव-पत्सविता क्षुरेण सोमस्य राज्ञो वरुणस्य विद्वान्।’

Cf. Jaim. Up. Br., III. 13.9. Brihad-aranvaka Up., Vol. III.3.2.

shaven, had long hair on their heads. There is archaeological evidence to prove that in the Bronze Age, not only in India, but also in Mesopotamia and Mycenae, men tried to get rid of the very inconvenient growth of the moustache, even when they retained their manly beards. It is also possible that with long blades, they trimmed their long hair.

Dr. Mackay observes: "Quite a number of metal instruments have been found at Mohenjo-daro that appear to be razors of varying shapes, some of which may have been used to remove the hair from the body as well as the head. As far as we can judge from the few pieces of statuary, long hair was worn by both the male and the female; and the men also wore short beards, though from the evidence of two male statue-heads, the upper lip was sometimes shaved, as in ancient Sumer.... Owing to their diverse forms it is convenient to group these razors into four types: (a) double-bladed razors, (b) L-shaped razors, (c) hook-shaped razors and (d) simple blades."²¹

In this context, we must, however, bear in mind a couple of facts, *first*, that some of these varieties may not have been used as blades at all, but only as knives: and *secondly*, that the actual prevalence of the "blade culture" was, perhaps, not so well-marked or popular as this passage would indicate. Indeed, in the extensive reports of Sir John, one finds a mention only of two blades—made most probably of bronze—one of which may well be considered as a doubtful specimen.²² In a footnote to his observations in the text of his report of Mohenjo-daro excavations, Sir John undoubtedly speaks of "numerous perfect examples" found at Mohenjo-daro—obviously, referring to some of those mentioned by Dr. Mackay in the subsequent reports. But if we look at the total number, it does not warrant the popularity of this "culture" among the Indus Valley people. The popularity of this culture among the Vedic "Aryans" is, however, undeniable: It was prevalent among their forebears (?) the Hittites etc. and among their descendants, the Brahmanas etc. of India, ever since the Atharva-veda.

Rik-samhita, a Product of Bronze Age or Iron Age?

In view of the facts mentioned above, therefore, one may legitimately conclude that the *Rik-samhita* is a literary product of a period not earlier than the Bronze Age culture of Harappa. That is, it is not altogether impossible, though not probable, that the

21. Mackay, F.E.M., Vol. I, p. 468

22. Marshall, II, p. 500.

Rik-samhita was produced by the Indus Valley people themselves. It is difficult to conceive the origin and development of such a vast sacerdotal literature and such a complicated and elaborate ritual, as is to be witnessed in the *Vedas* and the *Brahmana* works, except on the basis of a city-civilization, with a large number of "social parasites" like the priests; and this literature also evinces quite a substantial growth of the warrior-caste, the commercial class (*Panis*) etc. In all these features, this civilization reveals a marked resemblance to that of the ancient trade-marts of Mohenjo-daro and Harappa. And since the script of these trade-marts remains yet undeciphered, there is no decisive evidence to prove that the authors of the *Rik-samhita* were not actually identical with the authors of the Harappa Culture. Whatever differences are observable in diverse cultural aspects of these two, they can by no means be considered decisive in respect of their being distinct.

As matters stand, however, these differences are deep-rooted. Further, if there is no certain evidence to prove the prevalence of the Iron Age during the period of the composition of the *Rik-samhita*, there is also no direct reference to the existence of the bell-metal or bronze in that text. As shown above, the text vouches for the prevalence of the "blade-culture": and this presupposes the existence of the Bronze Age culture. Further, if the shaving of the head was in vogue, blades of bronze cannot be considered adequate, the knowledge of iron blades, and, therefore, of developed Iron Age culture, has to be presumed; and without this, many *Rig-vedic* rituals cannot at all be understood. The *Rik-samhita* contains numerous references to "Ayas", some of which are in connection with the towns of the enemies of their gods, i.e., in all probability, of their own enemies, that they met with in the Indus Valley. We have seen that words philologically akin to "ayas" are known in some of the related languages of the "Indo-European" group, to signify both "copper" and "bronze". This makes us wonder if the word "ayas" did not bear the same meanings in the *Rik-samhita*, and if the references to "ayasih purah" etc. in that *Samhita* are not to the "cities of bronze (culture)" like Mohenjo-daro etc. that they met with in the Indus Valley. These somewhat contemptuous references would, perhaps, indicate that they themselves were in possession of iron rather than bronze.

Iron in "Post-Rik-samhita" Literature

Turning to the other *Vedas*, we find that in both the *Atharva-veda* and the *Vajasaneyi Samhita* (of the *Yajur-veda*), two sorts

of "ayas" are mentioned by name, viz, "syama" (swarthy) and "lohitā" (red).²³ Obviously, these names refer to iron and copper respectively. "Lohitayasa" is also called "Lohayasa", whereas "syamayasa" is known quite frequently in the Upanishadic literature as "karshnayasa".²⁴ It is these facts which made us observe formerly that the Vedic Aryans were aware of the use of iron, (i.e. belonged to the Iron Age). But that may be, perhaps, confounding issues, already so confused.

We may, therefore, clarify our views thus: *Whereas the Rig-Vedic Aryans cannot be definitely said to have possessed the knowledge of iron, there is no doubt that the "Aryans" of the time of the composition of the other Vedas did so.* If we depend on the "obvious" or the visible evidence, obtainable from the Vedas and refuse to make any allowance for any unknown facts or factors, we can well say that the Iron Age had just started by about the composition of the Atharva-veda Samhita and the Vajasaneyi Samhita, and that it had not come into existence at the time of the composition of the "earliest" of the Vedas, viz the Rig-veda. Indeed, it is possible to look upon this as a definite piece of evidence for supposing that some sizable period intervened between the composition of the Rig-veda and that of other Vedas. Even so, it is difficult to conceive that the Rig-vedic "suktas" were composed very much previously than the other Vedas and that the Harappa Culture intervened between their dates; for all other (such as linguistic etc.) evidence points in the opposite direction.

Another point which remains to be clarified with reference to the use of the word "ayas" in the Vedas is that relating to the change of the original meaning of that word, which naturally took place when more than one metal of different colours came into vogue, for ordinary purposes. In early Sanskrit the names of some of the metals, like hiranya (greenish yellow), rajata (white)

23. A. V. XI.317 — 'श्याममयोऽस्य मांसान लोहितमस्य लोहितम् ।

Vaj. Sam., XVIII.13 — 'हिरण्यं च मे ऽयथ मे श्यामं च मे लोहं च मे सांसं च मे त्रपुं च मे यज्ञेन कल्पताम् ।'

24. Chhandogya Up., IV.177:— 'तथा लवणेन सुबर्णं संदध्यात्सुवर्णेन रजतं रजनेन त्रपुं त्रपुणा सांसं सांसनं लोहं लोहेन दारु...'

Ibid., VI. 1.5:— 'यथा साम्बेकेन लोहमणिना सर्वं लोहमयं विज्ञातं स्याद्वाचारम्भणं विकारो नामधेयं लोहमित्येव सत्यम् ।'

Jaini, Up. Br., III.17.3. See V. I., I, p. 31f, 151.

etc., appear to have been given according to the colours of those metals. The names "syama" and "loha" or "lohita" were appropriately given in a like manner, as indicated above, to those metals which were actually black and red respectively. But then, there remained a colourless metal—or rather, a metal, the colour of which it was very difficult to describe, which had to be given a name, or rather, which could not be given any special name, in accordance with this law. It is thus that we find the bronze mentioned in the *Vajasaneyi-samhita* simply as "ayas", when simultaneously "syama" and "loha" are mentioned—the latter without the mention of the clarifying noun "ayas", which they qualify. In later times, when a distinct name like "kamsya" was invented for bronze, the name "ayas" gradually came to signify neither "copper" nor "bronze", but curiously enough "iron".

After writing the above, our attention was drawn to the following observation of Dr. Vincent A. Smith, which almost summarizes our case: "Although 'ayas' or 'metal', when fitted with an epithet in the *Rig-veda*, is described as 'reddish', and should, therefore, be interpreted as meaning 'copper', the use of iron in Northern India must certainly be carried back to very remote antiquity. The authors of the *Atharva-veda* have been acquainted with both iron and copper."²⁵ Dr. Vincent Smith is, however, of the opinion, differing from our own, that "the literary evidence, therefore, indicates that the introduction of iron into the north-west of India was subsequent to the composition of the *Rig-veda* and anterior to that of the *Atharva-veda*".²⁶

The Date of the Rik-samhita

It will be seen from the foregoing pages that the earliest literary product of India, viz. the *Rig-veda-samhita*, is the only ancient literary text of importance throughout the world, which does not make any specific reference to iron. The other important Vedas also belong to the Iron Age, and were, therefore, produced after the end of the Indus Valley civilization, which was the product of the Bronze Age. We have also learnt in a previous chapter that the Iron Age began in about 1500 B.C. somewhere in the vicinity of the Armenian mountains. Further, the Indus Valley civilization (or the Harappa Culture) belongs to a period, that extends roughly from about 2500 B.C. to about 1500

25. I.A. (1905), XXXIV, p. 230.

26. Ibid. Cf. Macdonell, *History of Sanskrit Literature*, p. 151.

b.c. All this would lead us to suppose that even in India the introduction of the Iron Age probably did not belong to a period much earlier than circa 1500 b.c. Again the earliest literature of the Iron Age, outside India, belongs to about the first half of the first millennium b.c., and there is archaeologically no legitimate ground to assume that, the Indian literature of old, which mentions iron, belongs to any period anterior to this: That is, there is nothing to warrant an earlier date for the Indian religious texts, mentioning iron (e.g., the Atharva-veda, the Vajasaneyi-samhita etc.), than similar early texts found outside India, on any plea that the Iron Age started first in India and then elsewhere, since the archaeological evidence in India does not lend support to that idea, and since conditions in India cannot be considered to have been favourable for the discovery of iron-metallurgy. Further, since these religious texts (viz. the Atharva-veda etc.), do not appear to have been very far removed in point of time from the earliest of the Vedas (the Rig-veda), it is reasonable to assign the latter to about the end of the second millennium b.c. or to the latter half of it, at the earliest.

The afore-given suggestion about the date of the Atharva-veda etc. can be sustained by other arguments also. Undoubtedly some time must have elapsed between the inception of the Iron Age in Armenia and its introduction into India. Even for its introduction from Syria and Palestine into Egypt it took several centuries. On the eastern front, the Assyrians also did not learn the use of the iron weapons long before the beginning of the first millennium b.c., which is also several centuries later than the date at which iron was known in Armenia. For this reason also, it is possible to suggest that the two Vedas, which mention iron, must not have been written before c 1,000 b.c.; i.e., they were composed about the same time as some of the earliest literature in other countries. As to the date of the Rig-veda samhita, we have already drawn attention of the scholars in our work, *The Mother Goddess*, to a number of tribes mentioned in that text, which are known to the archaeologists as the residents of the countries of Syria, Palestine, Anatolia, Armenia etc., during c. 1400-1200 b.c., and which must have migrated to India after that date. This would mean that the Rig-veda really belongs to the Iron Age rather than to the Bronze Age. It will be admitted by any fair critic of that text that the spirit breathed by that text is that of buoyant, exuberant freshness and vigour of a developing age—of the “heroic age”—rather than that of a dying or decadent age. That is, we cannot

in fairness attribute it to the decadent period of the full-fledged Bronze Age—to a period, representing the later development of the Harappa Culture—but we must attribute it to the period of growth and development of the early Iron Age. It can by no means be assumed that the *Rig-veda-samhita* was composed before the beginning of the Indus civilization, just as the *Atharva-veda* etc., were composed after the end of it, i.e., the whole epoch of the Indus civilization and something more intervened between the composition of the earliest of the Vedas and that of the others. To explain: The period of about a millennium and a half, that was apparently required by the Indus civilization and the migration of the Iron Age culture to India, cannot have intervened between the composition of the *Rik-samhita* and that of the others, since no great gulf appears to have separated the two. In fact, the totality of circumstances does not appear to warrant any other conclusion about the date of the composition of the *Rik-samhita* but that it is not anterior to that of the Indus civilization, and may well be posterior to it.

The predominance of the cult of the Mother Goddess or of the female divinities in the Indus civilization, and that of the male divinities in the *Rik-samhita* would endorse the same conclusion. It is quite natural that during the Copper and Bronze Age of India, i.e. during the time of the Indus civilization, the cults of the former age, viz the Neolithic Age, prevailed. The ideological development of the society could not keep pace with the actual material development of the society. But slowly and gradually the society itself was getting reoriented from matriarchal clans to patriarchal tribes, as stated above. This was bound to affect the ideological development, howsoever gradually and slowly. The ushering in of the Iron Age established a complete mastery of the man over the woman, and accentuated the growth of patriarchy, kingdom, empire, and other aspects of social development, that had already originated during the Copper and Bronze Age. But what it affected greatly was no doubt the ideological development, that was especially to be witnessed in the growing predominance of the male divinities of the tribes.

During the "heroic age", that is, the earlier part of the Iron Age, the process of building up of empires was accompanied by the growth of songs in praise of such divinities, and also of bards, in quite a number of countries. It is not without reason that in all the "Indo-European" (or "Aryan") communities of the ancient world, we find a predominance of the male divinities, and not of

the female ones. Thus, in the field of thought, we find at least these two factors, viz, the prevalence of a new vigour or vitality and the predominance of the male divinities, that mark out the period of the *Rik-samhita* from the Copper and Bronze Age civilization in India.

Finally, there is some important evidence, connected with the use of the "military chariots", that were so very popular among the Rig-vedic "Aryans". It is impossible to conceive of the existence of such chariots for the common soldiers, except during the Iron Age; for without the iron rim, a war-chariot can scarcely be supposed to withstand the rough and tumble of a fierce engagement. The "Aryans" in all probability used horses, brought from their original home, Caucasus etc., for the purpose of drawing their war-chariots; and it is only an iron rim, and not a bronze one, that can stand the pressure exerted during the engagements of such horses.

CHAPTER XVIII

THE ORIGIN OF THE ARYANS

"To state once more the quintessence of our argument, two sentences will suffice: Comparative Philology of itself is not in a position to reconstruct the primitive culture of the Indo-Europeans, and if we are to secure our advance step by step over this difficult ground, we can only do so on the condition that the three sisters, Linguistic Research, Prehistoric Research (? =Archaeology), and History, unite in the common work."¹

—DR. O. SCHRADER

IN the last three chapters, we have attempted to tackle the "riddle of the Aryans" from archaeological and linguistic points of view. In these two respects, there are also other arguments, which we cannot ignore in any attempt to solve this riddle. Though this work is mainly intended to deal with prehistoric and protohistoric archaeology, we may not here totally ignore certain philological arguments advanced by some eminent philologists, since they are helpful in determining the flora and the fauna, known to all the different branches of the "Indo-European" languages, and since this enables us to get at the original habitat of the "Indo-Europeans", that must have been familiar with the same flora and fauna.

Dr. Schrader observes: "An observation of the estimable Julius v. Klaproth deserves to be mentioned here, inasmuch as it is the first attempt to ascertain anything about the original home of the Indo-Europeans by means of Comparative Philology and the geography of the plants. As early as 1830, . . . this scholar, from the fact that the name of the birch was the only name of a tree in Sanskrit which recurred in the other Indo-Germanic languages, (Sans., 'bhurja' = Russ., *bereza* etc.) drew the conclusion that the Sanskrit population of India must have come from the north. These peoples did not find in their new home the trees which they had known in the old, with the exception of the birch which grows on the southern slopes of the Himalayas."²

1. *Prehistoric Antiquities of the Aryan Peoples* (London, 1890), p. 149
2. *Ibid.*, p. 7.

It was as early as 1868 that Benfey "contended that certain animals such as the bear and the wolf, and certain trees such as the beech and the birch, with which the primitive Aryans must have been acquainted, are all indigenous to the temperate zone."³ Benfey put the cradle of the original "Indo-Europeans" to the north of the Black Sea, and his view has been recently strengthened by the argument that "since honey was so common among the I.E. (Indo-Europeans), their original home must be located near the Black Sea, where there must have been an abundance of lime-trees to attract bees."⁴ To this group of trees, Geiger added the willow, the ash, the alder, the hazel, the oak etc.; but of all these the birch, the beech, and the oak, he considered as specially decisive.⁵ About the beech, it was stated that it "is not only absent from the Hellas proper, but is not found east of a line drawn from the south of Norway to the Swedish coast near Gottenburg, and then from Koenigsberg through Poland and Podolia across the Russian steppes to the Crimea, and terminating in the Caucasus."⁶

Dr. O. Schräder, who treated these and other issues exhaustively from philological, archaeological and palaeontological points of view, collected a vast amount of material on these and allied problems, and came to the following conclusions: "North of the Pontus and the Caspian Sea stretches an area twice as great as that of the France of today, the districts of the South Russian steppes, joining on the east the immeasurable steppes and wastes that spread as far as the foot of the mountain system of Central Asia, bordered on the north by the hilly, woody country of Central Russia and bounded on the west by the forest-clad ranges of the Carpathians. . . . Forests of oaks, beech, maple, alder, poplar, willow, lime, birch meet us—though to no great extent, and even then broken by broad, barren spaces—in the Ukraine, Podolia and the south of Little Russia, and low forests of firs and pines in the district of Kiev. In fine, the further north or west we go from the grassy, leafless steppes, the more the vegetation increases in strength and abundance until we are surrounded by the densest forest of Central Europe, that of the Carpathians and Volhynia... This area, therefore, bounded on the south by the Danube and the sea, on the east by the Dnieper, on the north by the forest and swamps of Volhynia, on the west by the Carpathians, this, and in my opinion this alone, fulfils the conditions which we require of the scene of development of European

3. J. Taylor, *The Origin of the Aryans*, p. 25.

4. Proceedings of the Indian History Congress (1947, Bombay Session), p 36.

5. Taylor, *The Origin of the Aryans*, pp. 26-27 and in.

culture. If we picture to ourselves the European members of the Indo-Germanic family pouring along no matter from what quarter of the interior of the South Russian steppes, the Carpathians on the west, and the primeval forests on the north must have called an imperative halt to the *march of the advancing bands*. Here the oak may have become the abode of the supreme God, and the grove the temple of the denizens of heaven.”⁶ The Aryans were a conquering horde, in the right imperial style: Only that they got this conquering “instinct” at no time of the great Bronze Age civilizations of Egypt and the Near East!

Prof. P. Giles, who calls the “Indo-Europeans” *Wiros* (a term connected with the Sanskrit word “Vira”, meaning a hero or a brave fellow), evidently supporting incidentally the theory about the “Aryans” being a conquering race, argues about the original habitat of these people thus: “To their habitat we may assign, with considerable certainty, the oak, the beech, the willow, and some coniferous trees. The birch seems to have been known to them and possibly the pine, less certainly the elm,... These *Wiros* were in all probability not a nomad, but a settled people. The useful animals best known to them were the ox and cow, the sheep, the horse, the dog, the pig and probably some species of deer. The camel and the elephant were apparently unknown to them in early times; and the great variety of words for the goat would lead us to suppose that this animal also was of later introduction.... There is apparently one such area in Europe, the area which is bounded on its south by the Balkans, on its western side by the Austrian Alps and the Bohemian Wald, and on the north by Erzebirge and the mountains which link them up with the Carpathians.”⁷ In other words, it comprises the districts, “which we now call Hungary, Austria and Bohemia.”⁸

He thus prefers a region comprising the western parts of that chalked out by Dr. Schräder. In this connection Prof. V. Gordon Childe observes: “The distinguished philologist (Prof. Giles) is not an archaeologist, and makes no attempt to trace his ‘*Wiros*’ with the aid of material remains.”⁹ He then himself proceeds to make such an attempt: “But the area he (Prof. Giles) has outlined, was in fact the centre of a distinctive culture, the development of which falls within the chronological limits he has laid down. This culture,

6. Op. cit., pp. 432-433. (Italics ours).

7. *Cambridge History of India*, Vol. I, pp. 67-68.

8. Ibid. Vide I. Taylor, *The Origin of the Aryans*, p. 30, for Cumo’s view about the cradle of the “Aryans” being a plain.

9. Childe, *Aryans*, p. 130.

which may be called Danubian or more precisely Danubian I, was the creation of those early Mediterranean colonists....”¹⁰

Now, Prof. Giles’ philological arguments may be valid in so far as they indicate or help to determine the geographical area, wherein the flora and the fauna, known to the eastern as well as western branches of the “Indo-Europeans” are to be found; but it cannot be averred with the same certainty that they help to determine the relative time also, with any approximation whatsoever. Therefore, the culture of the undivided “Aryans” or “Indo-Europeans” must not be forthwith identified with the “Danubian I”, which is the oldest neolithic culture of Central Europe. Archaeologically speaking, this culture differed from the Danubian II mainly with regard to the following which it did not possess: introduction of copper, and of weapons like the axe-axes, axe-hammers etc., and some decorative designs in pottery etc. None of such points, except the introduction of copper, can historically help us, for none of them is likely to be reflected in literature. With regard to the introduction of copper, however, we have already made it clear that there is enough proof to show that the undivided “Aryans” or “Indo-Europeans” were familiar at least with the copper, and hence, with the Copper Age culture Nay, there is even some evidence to prove that the undivided “Indo-Europeans” were not unaware of the Bronze Age culture.

We have seen above that shaving presupposes the existence of the Bronze Age, since it is first with the bronze razors that man began the regular practice of shaving—though undoubtedly he must have used in earlier times stone-blades to clip off any very extravagant growth of hair on the face (especially of the beard). We have also seen above that the Rig-vedic Aryan used *kshura* for shaving (the head). Dr. Isaac Taylor connects this Sanskrit word for the razor with the Greek word for the same, viz. *khuron*.¹¹ This proves that the undivided “Aryans” knew razors, i.e., were at least in the Bronze Age. This conclusion is curiously confirmed by some direct evidence.

It is well-known that the words for “copper” in various Indo-European tongues are often to be derived from one and the same word. Not only this, but the word for “tin” in many Indo-European tongues is also to be derived from one and the same source. It is suggested that “the Greek name *Kassiteros* is borrowed from the Semitic (Assyrian *kasazitirra*), which again is derived from

10. Childe, *Aryans*, p. 130

11. I. Taylor, *The Origin of the Aryans*, p. 173.

the Accadian *id-kasduru*.¹² Since in Sanskrit also, the name for "tin" is "kastira", we may perhaps have to give up the Accadian derivation suggested here, or rather, may have to derive the Accadian word from some original "Indo-European" word. Thus, there is evidence to show that both the ingredients of bronze, viz. copper and tin, were known to the undivided "Indo-Europeans", who were the ancestors of both the Greeks and the Rig-vedic Aryans. That is, they were conversant with the Bronze Age civilization, before they branched out from their original habitat. If these "Indo-Europeans" branched out about the beginning of the Iron Age, there is, indeed, little cause to be surprised if there is no common word for "iron" in the tongues of their descendants.

From this, following Prof. Giles, we may, perhaps, conclude that if the "undivided Indo-Europeans" belonged to the valley of the Danube, and they have to be relegated to the Bronze Age, i.e., they were evidently the authors of the Danubian IV or V, and not of the neolithic Danubian I. In this context, we may remember *en passant* that some of the earliest examples of tin in Europe have been found in the Swiss pile dwellings as well as at Hallstatt,¹³ in Austria.

But since all the earliest "Aryans" appear to have been conversant with the use of iron, with the only possible exception of the "Rig-vedic Aryans", we may take it that the "undivided Aryans" (i.e. the Indo-Europeans) had passed the Bronze Age, represented by the Danubian IV and the Danubian V cultures, and that they had entered the stage represented by the Hallstatt culture. Let us see what this Hallstatt culture was.

Hallstatt Culture

This culture represented the beginning of the Iron Age in Central Europe, just as the Late Mycenaean III represented it in southern Europe. We have already seen that quite a number of cultures, like the Minoan, Mycenaean, Trojan etc., appear to have come to an abrupt end by about the end of the Bronze Age, or rather betray the supplanting of the Bronze Age civilization by the Iron Age one. The latter likewise supplanted the former in the valley of the Danube in c. 900 B.C., and the supplanting is especially visible in the village of Hallstatt, situate on the shores

¹² I Taylor, op. cit., p. 138. It is important to remember that Armenia abounds in the oxide of tin or cassiterite (De Morgan, *Prehistoric Man*, p. 115).

¹³ I Taylor, op. cit., p. 138.

of the beautiful lake of Hallstatt, about 30 miles south-east of Salzburg. The cemetery of this place, consisting of over two thousand graves, has yielded a wonderful and varied culture of the end of the Bronze Age¹⁴ and the beginning of the Iron Age, which is a direct continuation of the Danubian IV and Danubian V.

According to Prof. J. I. Myres, "This 'Hallstatt culture' not only dominates all the Upper Danube, but exercises widespread influence over middle Germany, over central and northern France, and over Britain and Ireland."¹⁵ The long, broad, leaf-shaped swords (with the heavy pommels) and the scabbards, that we find continued here from the Bronze Age into the Iron Age, are some of the most characteristic weapons of this place. About the former, Prof. Myres says: "Its characteristic swords, modelled at two removes on the Late Minoan type, already mentioned, travelled even further into Bosnia, Macedonia, Hungary, East Prussia, Posen, Hanover, Schleswig, and Scandinavia, and in later varieties into Spain and the British Isles."¹⁶ He also adds: "It was during the domination of the leaf-shaped sword that bronze began to give place to iron as the material for cutting weapons."¹⁷ It is commonly held that the spread of the Hallstatt culture in northern and western Europe was due to the Celts and the Illyrians, who were the authors of that culture.¹⁸ But Hallstatt itself probably owes the long, broad, leaf-shaped swords to the Cretan civilization, where they developed from short daggers by about the Late Minoan III period; as Prof. Myres says, they were "modelled at two removes" from the Late Minoan proto-type.

The Iron Age culture of Central Europe, which is named after Hallstatt, begins with the revival of painted pottery. The shapes of vessels in it "recall those of South Russia", and "the graphite technique and the chequer pattern appear on them as on the chalcolithic vases of Thrace."¹⁹ In the vicinity of the ancient city are to be found some prehistoric mines, where "salt was extensively obtained." The reason for the excellent state of preservation of the antiquities found at this locality is given as follows: "Thanks to the preservative nature of the salt, their implements, parts of their clothing and even (at Hallein as well as Hallstatt) the bodies of miners themselves have come to light."²⁰

- 14. E.B. (14), XI, p. 103.
- 15. CAH., I, p. 106.
- 16. Ibid.
- 17. Ibid., p. 109.
- 18. Childe, *Iryans*, p. 118.
- 19. Childe, DEC, p. 169.
- 20. E.B. (14), XI, p. 103

Some Specialities of the "Indo-Europeans"

The "undivided Aryans" must have known not only the horse, but also the chariot. This is proved by the following facts, brought out by Prof. V. Gordon Childe: "The horse is, indeed, the Aryan animal par excellence in the early history of Mesopotamia, in the *Veda*, and in Homer."²¹ Elsewhere, we learn: "One of his (Aryan's) products for which a detailed terminology is preserved was a wheeled vehicle,"²² which is called *ratha* in Sanskrit, *rota* in Latin, *roth* in Celtic, *rad* in Teutonic (Old High Germanic tongue), *ratas* in Lithuanian, and so forth. A number of words including those for nave, axle, wheel etc., are found to be common to many of the Indo-European tongues, as is shown by Prof. Schrader followed by Prof. I. Taylor, Prof. V. Gordon Childe, and others. We may remember that horse-breeding is an important industry in Hungary even today, and that the Hungarians have been famous throughout their known history for their excellent horsemanship. Horses and chariots were two important characteristics of the Hallstatt culture. Thus, there can be no denying that the early Iron Age culture of Hallstatt was due to the "Indo-Europeans".

But then, the Mitannian treatise on horse-training, found at Boghazkeui, which contains the earliest expressions of an Indo-Aryan language on that subject, is far too removed from this area, for the latter to serve as the pivot of a good hypothesis, about the original home of the Indo-Europeans. It can never be conveniently forgotten that the earliest "Aryan" documents hail from Armenia. Secondly, south-eastern Russian steppes that are much nearer to Armenia are as much famous for horse-rearing as Hungary is, and the Cossacks of that region are at least as famous as the Hungarians in horsemanship. Thirdly, the initial date of the introduction of the Iron Age in Austria-Hungary appears to invalidate the supposition that the iron-using Indo-European tribes had their original home in this region. The Iron Age was introduced here not earlier than circa 1000 B.C. and probably in about 900 B.C., and the use of iron-weapons appears to have spread across the plains of southern Europe in the east-to-west direction. Thus, it was only after the central Danubian regions had absorbed the Iron Age civilization and had developed it in accordance with

21. Childe, *Aryans*, p. 83. Cf. Sk. *asva*; Gk. *aspis*; Lat. *equus*; etc.

22. Ibid., p. 86; also read pp. 62-93. On the "horse" in Indo-European languages, read Prof. Taraporewala's article in Sir Ashutosh Mukherjee Commemoration Volume, I, p. 302f.

its own peculiar needs, that some "Indo-European" tribes, under the leadership of their chieftains, appear to have started their southward and westward march in about the middle of the first millennium B.C. Thus, the Hallstatt culture is regarded as a parent to the Celtic and the Illyrian cultures. The early Iron Age geometrical culture of Greece, attributed to the Hellenes and the Villanova culture of northern Italy, attributed to the Italici, "are... connected by some authorities very closely with that of Hallstatt."²³ In view of this westward spread, mostly along the temperate zone during the earliest days of the Iron Age, the problem about the original home of the "Indo-Europeans" has become somewhat complicated; for in this area, the same trees are to be mostly found everywhere. We have, however, to correlate this evidence, obtained from linguistic studies, with actual relics made available by archaeological studies. Thus, from all the available archaeological data it appears certain that the region of Hallstatt was one of the early centres of the "Indo-Europeans", but not the earliest, and that it possessed a civilization that was hardly distinguishable from some other early centres of that culture, that lay towards its east and south-east.

Prof. Jaques de Morgan, one of the greatest archaeologists, who has studied intensively the archaeology of the Caucasus-Armenian region, states: "In Trans-caucasia, we distinguish two successive forms of the Iron industry....The first, highly specialized, seems, on the whole, to be simply a continuation of the forms of the bronze culture of those parts; it is localized in the mountains of Armenia. The second, on the contrary....is that which appears to have been parent of or sister to the Hallstatt culture of the west. And this culture itself, if we may judge by the funerary furniture, must have borrowed some details from the civilization, which had preceded it in Trans-caucasia."²⁴ Similar conclusions have also been drawn by other archaeologists: "...the Early Iron Age civilization of Central Europe, the so-called Hallstatt culture, shows such close affinities with that of the Caucasus that only a racial drift from one end to the other of the Danubian-South Russian plain will explain them... The parallels between the material exhumed from graves in the great cemetery explored by Bayern, Virchow and Chantre at Koban on the road across the Caucasus from Vladivkaz to Tiflis, and that from the necropolis of Hallstatt in Upper Austria and other sites in Central Europe, are indeed

23. Childe, *Bryants*, p. 118.

24. De Morgan, *Prehistoric Man*, p. 136.

numerous and exact...."²⁵ "Both the folk buried at Koban and those interred or, earlier, inurned at Hallstatt were great horsemen, and there are many remarkable similarities in the bits and horse-trappings found at both cemeteries. Particularly striking are the open work pendants often shaped like bells....The warriors of Koban and Hallstatt both used peculiar bronze or iron swords distinguished by a hilt terminating in crescentlike projections turned away from the blade."²⁶ Another authority also points out that "at the north-eastern end of this area (Western Asia) as well as north of the Caucasus, Ernest Chantre excavated cemeteries which yielded weapons and other iron objects closely allied to the Hallstatt products of Europe."²⁷ There is thus enough circumstantial evidence to show that the culture, produced in the region of Koban, the Caucasus-area and the south-eastern steppes of Russia, was indigenous to that locality, in the sense that it witnessed the transition of the Bronze Age into the Iron Age, not by dint of any extraneous circumstances, but as a result of its own maturity and that the borrowers are the Hallstattians.

It must be clarified here that when we give the people of this locality the credit of introducing the Iron Age, we do not, for a moment, suppose that they did not borrow the numerous elements of their civilization previously from surrounding peoples. Thus, it is quite possible that they borrowed many elements of their Copper and Bronze Age civilization from the Egyptians, the Mesopotamians, as well as from the Danubians of Periods III, IV and V. Racially they may have been more akin to the Danubians than to anybody else, and there was nothing that could stop the culture-contact between the people of the Caucasus-South Russian steppes and those of the mid-Danubian basin or of region around Hallstatt. It will be seen that this theory is essentially a modification of the theory, advanced by Prof. Peake, who has been accused of naivety. "This author, who agrees that Koban culture was largely inspired by people coming from Central Europe, whom he accepts as Aryans, nevertheless holds that some of them returned from the Caucasus and brought with them the Hallstatt culture to the Danube valley."²⁸ We believe, his theory is not altogether naive as it is supposed to be. This theory was partly necessitated, we believe, by the continuity of Central European races during the post-neolithic times to which Dr. Isaac Taylor and others had drawn

25. Childe, *Aryans*, p. 118

26. *Ibid.* p. 119.

27. E.B. (14), II, p. 253.

28. Childe, *Aryans*, p. 123.

attention, and also by the fact that there is some evidence of the Caucasus and South Russian region borrowing the culture of the Hallstatt region during the Bronze Age. It cannot be too much emphasized that borrowing could be mutual.

We have to point out that the region, marked out by us, fully meets the exigencies of philology. The essence of Prof. Giles's contention is that the region, indicated by philological considerations, must be sought in mountainous territories not far removed from a fertile plain in the temperate zone. Even if we leave aside the plains of the south-eastern European Russia and the mountainous regions of Caucasia, we know of both the "hill-sides" and the "low-land" in the country of Armenia.²⁹ Cattle-breeding and horse-rearing constitute an important industry in the Caucasian region.³⁰ Tending of sheep, goats, pigs etc., appears to have been an ancient vocation in this area.³¹ "On the foothills (of the Caucasus) patches of mixed steppe and forest lead to the continuous beech, oak, horn-beam, ash, maple, lime and elm forest, above which are pines, birches and silver firs, with Alpine meadows higher still."³² The arguments, derived from oak, lime, birch, beech etc., could easily be met as well here as in regions north of the Black Sea. The vine also grows abundantly in the sheltered valleys of the Caucasus. The valley of the Don, which appears to have passed through the region, included by us within the territory of the original home of the "Aryans" of the Iron Age, is not far removed from the Caucasus mountains, and is also marked by oak, elm and other trees. A number of authorities vouchsafe for the existence of large deposits of copper, iron, nickel, lead, zinc, coal etc., in the Caucasus mountains.³³

In this region, as will be clear from the perusal of the foregoing pages, we can easily meet one of the latest arguments advanced by Dr. R. N. Dandekar on the basis of linguistic parallels, that are to be witnessed between the "Indo-European" tongues, on the one hand, and the Semitic and other languages, on the other. Such numerous parallels have been noted among others by us in *The*

29. E.B. (14), II, p. 378

30. Ibid. For the actual Bronze Age animals of South Russian and Caucasian regions, see above, p. 328.

31. Ibid., V, p. 53.

32. Ibid.

33. Ibid.; *1st Atlas of the U.S.S.R.* (Oxford Pamphlets, No. 6) p. 9; etc. We have spoken above of the Ossets, whose country "consists of the mountain region of the Caucasus, with snow-clad peaks... Coniferous forests extend above the oak, hornbeam, ash, maple, and lime... South Ossetia is essentially a grazing region." E.B. (14), XVI, p. 953-954. For Ossets, also see M.G.

Mother Goddess, though incidentally. Noting similar parallels, Dr. R. N. Dandekar comes to the conclusion that "it may, therefore, be reasonably assumed that the home of the early I E (=Indo-European) speech must have been located in such a region as would be directly contiguous with the Sumerian-Akkadian-Mesopotamia linguistic zone, the Inner-Asiatic-Altaic linguistic zone, and the Ugro-Finnic linguistic zone."³¹ Now, the area chalked out by us does, indeed, fulfil the demands made by such arguments, almost as much as that suggested by Dr. Dandekar himself: "It will be seen that the region between the Ural mountains and Altai, to the North-West of the Caspian Sea, that is to say, the North Kirghis steppes, fulfils the foregoing conditions better than any other region."³²

In the end, we may draw attention to a singular fact, which, we believe, has a bearing on the problem relating to the home of the "Indo-Europeans" (or "Aryans,") who instituted the Iron Age, and a branch of whom migrated to the south beyond the Caucasus. Reading the *Rik-samhita*, we were often struck by the fact that the word "Danu" signifies in that text "a river"—a meaning, which that word bears practically nowhere in the later classical Sanskrit literature. This suggested to us that the rivers in the original home of the "Indo-Europeans" were known by that or similar name.³³ At once our attention was drawn to the striking fact that in Central and Eastern Europe (including European Russia), quite a number of rivers were known by names, which contained the consonants *d* and *n*: witness, for instance, the names Don, Dvina, Donetz, Dnieper, Dnies-ter, Danube etc. Of these, the river Don is called by the Tartars "Duna" or "Tuna", and by the ancient Greeks "Tanais"; while the Danube is known in German as "Donau," in Hungarian as "Duna," in Rumanian as "Dunarea" in Latin as "Danuvius", etc.³⁴ It is, perhaps, all this region through which these rivers pass, that may claim to be the original home of the "Indo-Europeans." On the whole, we are inclined to follow only *partly* the opinion of one of the earliest investigators in this field, viz. Mr. Benfey, and to look upon the region north of the Black Sea, as only one portion of the original home of the "Indo-Europeans". The regions to the east and the south-east of the Black Sea, in

31. Proceedings, Indian History Congress (1917, Bombay Session), p. 35.

32. Ibid.

33. R. V. I. 320 — 'दानुः शये सहवत्सा न धेनुः।'

34. T.B. (14), VII p. 43

other words, the South Russian steppes and the regions around the Caucasus and the Armenian mountains, constituted in our opinion the most important portion of the original home of the "Indo-Europeans", and it is the residents of these that invented the earliest iron implements that started their conquests and migrations. These migrations may not merely be due to their "conquering zeal" or "instinct", that only their new weapons allowed them to entertain. We have seen above that the Hittites present a more prosperous appearance than their contemporaries. It was the tools and weapons of the Iron Age that enabled them to acquire this greater prosperity. Quite naturally, they must have also increased in numbers comparatively more rapidly than other contemporary communities that still used the implements of the Bronze Age. It is evidently this factor that greatly helped the migrations of the "Indo-Europeans", who, since one of their important branches made one of its earliest homes in Iran, came to be termed "Aryas" or "Aryans".

CHAPTER XIX

IRON AGE SITES IN INDIA

IN the foregoing chapters, we have confined ourselves merely to the literary side of the question pertaining to the beginning of the Iron Age in India. There is the archaeological side of it, which, however, remains to be fully revealed by future investigations, that must be carried out in different parts of India. Indeed, we know next to nothing about the prehistoric Iron Age in Northern India, while whatever little material we can gather from the South, barely reveals the fact that there was something of a prehistoric Iron Age in that area. Yet, there is no means of knowing the exact state of the civilization, either before or immediately after the introduction of the Iron Age in that region. It would appear that even the correct sequence of ages in that region has hardly been ascertained, despite diggings (scientific or otherwise) at a number of places.^a

"Asura" Sites

It is curious to notice that some of the little-known Iron Age sites appear to have been assigned, as much confidently as wrongly, to tribes that may not after all have been the authors of the culture-complex of those sites. Thus, one of the famous pioneers of Indian anthropology, Rai Bahadur Sarat Chandra Roy, surveyed in Chhota Nagpur, Bihar, Orissa, etc., a number of deserted ancient localities, which he preferred to call "Asura" sites. There he apparently came across settlements of the "Copper and Bronze Age" and also the early Iron Age, which he was tempted by a number of considerations, especially their nearness to the Vindhyan ranges and to "Tripura" (modern Tewar), to attribute to the race of the Asuras, known as the enemies of the Aryan divinities, i.e., of the Aryans themselves. In the "Asura" sites of Chhota Nagpur, R. B. S. C. Roy "did not find any human remains... (but) the stone implements polished and otherwise, carnelian beads, wheel-symbols and such other objects were dug out in plenty."¹

^a This work was completed before 1940. Circumstances beyond the author's control made it impossible to issue the book before 1955. Recent advances would, therefore, modify such remarks.

¹ *Current Science* (June, 1942), XI, p. 235.

This would make it a neolithic culture, the wheel-symbol however suggesting that the Copper Age had at least started. In the opinion of another scholar, however, the "Asura" culture "is connected, on the one hand, with the Copper Age of North India, and on the other, with the Megalithic and Iron Age cultures of South India."² No trouble is taken to explain as to which archaeological period this "Megalithic Age" corresponds to. Does it represent the "Bronze Age" or the "Iron Age"?

Prof. B. S. Guha sums up the culture of the so-called "Asura" sites of R. B. S. C. Roy in the following words: "The remains surveyed up by Roy³ consist of ancient brick structures, silted up tanks and huge slabs and columns of sepulchral stones, attributed by the Mundas to 'Asuras', who were supposed to have occupied land before them. Over 18 of them were examined by him from Belwadag in the vicinity of Khunti, the subdivisional headquarters of the Mundas, to Sangrigaon and Indpirl, at the southern end of the Ranchi district. No human remains were found, but polished stone implements of various kinds, carnelian beads, wheel-made pottery with geometric designs, and large quantities of copper or bronze objects were unearthed. Cinerary urns, phallic symbols, iron objects, iron slags and kilns for smelting them were also discovered."⁴ Since a tribe named "Asur" actually exists in the Vindhyan belt, since the Vindhyan fastnesses are supposed to be the only convenient place for the "Asuras" to run and cling to, in the face of advancing hordes of the conquering Aryans, since Tripuri (Tewar, near Jabalpur or Jubbulpore) is traditionally the capital of a mighty Asura, known as Tripurasura, and since these megalithic Iron Age (or late Copper and Bronze Age) sites have been mostly found in the Chhota Nagpur plateau, this "Asura" theory had a great attraction for a number of anthropologists, though archaeologists have always looked upon these sites in a matter-of-fact manner. For in no country the "conquering Aryans" vanquished their enemies without mixing with them, absorbing some and giving other elements of culture. And even if the fanatical "Asuras" of the inner India did seclude themselves in the fastnesses of the Vindhya, these iron-knowing "Asuras" must have belonged to a comparatively late date (when the Aryans had probably already entered into India), and had apparently not secluded themselves having borrowed from them the use of iron.

2. *Current Science*, VIII (October, 1939), pp. 191-402.

3. JBORS I, p. 229 f.; II, p. 485 f.; VI, p. 393 f.

4. Guha, in the Silver Jubilee Volume of the Indian Science Association, *Progress of Anthropology in India* etc., p. 311.

At any rate, there is little proof to connect the wild tribe of modern Asurs with the ancient civilized race of the "Asuras", who are supposed to have been the Indian counterparts of the Assyrians; and beyond the tradition there is probably even less to connect these wild "Asurs" of the Vindhya with the prehistoric Iron Age sites of Chhota Nagpur, Orissa etc.

Mr. E. A. Murray excavated an ancient deserted site on the spur of a hill at Ruangarh (near Tatanagar) in the Dalbhum district, and unearthed a culture similar to that found in the "Asura" sites by Rai Bahadur S. C. Roy. This site yielded polished stone implements, including "stone chisels, or small celts with cutting edges," chert flakes and cores; beads of carnelian and other stones, and ornaments of copper and gold; pottery, most of it rude; iron slags etc.—these accompanied by a couple of human skulls.⁵ "The discovery of an identical type of stone implement in association with pigmy flakes, cores and beads" was made by Mr. N. G. Majumdar "near Dungarpur on the Damodar river in the Burdwan district of Bengal."⁶

Chandravalli and Brahmagiri

It must be remembered that finds similar to those in the so-called "Asura" sites have been unearthed at various places in South India. One of these, by name Chandravalli (near Chitaldrug) yielded to the spade of the late Dr. M. H. Krishna some copper fishing hooks, some "iron slag pieces", numerous microliths or "pigmy implements" of chert, chalcedony, besides "a tanged crystal arrowhead, finely ground celts, triangular in shape."⁷ The excavator relegates these finds to the neolithic or mesolithic times, without reference to the find of the iron slags etc.

Trial excavations by various authorities at Brahmagiri are alleged to have yielded besides an Iron Age settlement, a microlithic culture, assignable (according to these authorities) to the "Neolithic Age" or the "Mesolithic Age." Thus we learn from one source that below the second inhabited layer of the ruins of the Asokan Isila were "the third of a prehistoric Iron Age town and the last of a stone age settlement of the microlithic period."⁸ Another authority states: "Very recently in the excavations at Brahmagiri in the

5. Ibid. *Revealing India's Past*, p. 116.

6. Ibid., p. 117.

7. *Annual Report of the Mysore Archaeological Department* (1930).

8. K. N. Dikshit, in *Silver Jubilee Vol.* of the Indian Science Congress Association, (1938), p. 291.

Mysore State, Dr. M. H. Krishna found microliths in association with neoliths in comparatively higher levels and *only* microliths in the lowest levels, the whole culture sequence including more than one stratum of Iron Age followed by the historic period attributed to the early centuries before Christ."¹⁰ These results of the excavations conducted by Dr. Krishna may be compared with those of the excavations carried out by the Archaeological Survey of India in 1947, about which one of the participants observes: "His tentative conclusions were that an Iron Age culture characterized by white-lined painted pottery, succeeded and partly overlapped a neolithic culture with black-polished pottery types, which was in turn preceded by a microlithic culture of Mesolithic Age."¹¹ Another participant in the same excavations informs us as follows: "Both the cists and the pit-circles represent a full-fledged iron-using culture which made its appearance at Brahmagiri towards the beginning of the third century B.C. superseding the local Stone Axe culture."¹²

From all this, it appears almost certain that in the region of Isila, which came to be the capital of the vice-regent of Asoka, and thus, the most important locality south of the Narmada (Narbada) during the earliest historical epoch of the Deccan, there was already flourishing a pre-historic Iron Age culture, which had already done away with the microliths and the well-known polished neolithic implements.¹³ Since none of these writers speaks in these quotations of any copper or bronze implements in this locality or refers to the Copper and Bronze Age, it is clear that that age did not flourish here very vigorously; i.e., though the "Copper and Bronze Age" may have actually set in during the time when we meet the microlithic, or at least, neolithic implements in this locality, the implements of Copper and Bronze Age culture do not appear to have been introduced here in any mass scale. An explanation of this phenomenon has been offered to us by the late Rao Bahadur K. N. Dikshit in the following: "The remoteness of South India from any considerable sources of copper may account for the long persistence of stone implements for centuries after the Indus Valley had attained mastery over copper." The confirmation of F. Engels' thesis about the Iron Age implements only successfully ousting for

o. H. D. Sankalia, in *Current Science*, (Jan. 1946), XV, p. 12.

10. A. Ghosh in *I.H.Q.*, XXIV (1948), p. 15.

11. B. B. Lal, in *Archaeology in India*, p. 40.

12. Read especially Dr. M. H. Krishna's Presidential Address, Anthropology Section, entitled "Prehistoric Deccan," in the Proceedings of the 29th Indian Science Congress (Baroda, 1942), II.

good the implements of stone is to be found in South India as elsewhere.

In the following observation, Mr. Amalanand Ghosh, the present Director-General of Archaeology, indicating that the microlithic and purely neolithic implements continued to be in vogue, during the Copper and Bronze Age, but that they ceased to be used during the Iron Age, observes: "The new evidence shows that at least in this part of the Deccan (i.e., the Mysore State), the microlithic industry was coeval with a pre-Iron Age, when neolithic implements were in vogue, but the use of copper, and occasionally of bronze had begun."¹³ In the 1947 excavations at Brahmagiri, two types of burials were exhumed, viz, the cist-burial and the burial in the pit-circle. Mr. B. B. Lal informs us that in the first, the excavators came across, besides skeletal and cephalic remains, funerary pottery, beads etc., diverse implements of iron, including knives, wedges, sickles, daggers, swords, arrow-heads etc.¹⁴ In the pit-circles, the "funerary deposits, which lay within a height of 2½—3 feet from the floor-level, consisted of pottery, iron objects, beads, bangles, and, in one case, conch-shell."¹⁵

Adichchanallur

The most famous and also the most extensive site of the Iron Age unearthed so far in South India is that of Adittanallur (or Adichchanallur), which covers an extensive area of over a hundred acres. The cemetery here consists of pits, dug in hard rock, and "in adjoining hard soil, depositing in them funeral urns in rows. Some of the urns nearly three feet in diameter, contained [each] a complete human skeleton. The rest of the urns contained in most cases only a selection of the bones, either by themselves or in association with a variety of articles... Vessels of domestic use were found inside the big urns and outside them."¹⁶ Many of them contained rice-husks. Mr. N. G. Majumdar adds: "Among other interesting finds were iron implements such as swords, daggers, spear-heads etc., gold and bronze diadems, bronze bowls, hangers, cups, strainers and animal figures such as buffalo, also carnelian

13. *III Q.*, XXIV. (1948), p. 1 f. This silence does away with the myth that in South India, the Neolithic Age was succeeded immediately by the Iron Age, for this clearly shows that at least in some localities there is evidence to prove that the "Copper and Bronze Age" intervened between the passing of the Neolithic Age and the advent of the Iron Age.

14. *Archaeology in India* (1950, New Delhi), p. 40

15. *Ibid.*

16. *Revealing India's Past*, p. 113 f

beads, and miscellaneous ornaments of cut wire. A special interest attaches to the animal representations in radiating rows, supported on metal frames."¹⁷ According to Prof. Panchanan Mitra, "The domestic animals represented in bronze are buffalo, goat or sheep and cock; and the wild animals are tigers, antelope and elephant. There are also representations of flying birds."¹⁸ All these animals, we know, betray the prevalence of the worship of the Mother Goddess. The metallic objects exhibit a great variety, many of these being of "hitherto unknown designs", and "a considerable amount of skill had been exercised in their manufacture."¹⁹

17. Ibid., p. 114. By "metal frames", the author alludes to bronze lids.
18. P. Mitra, *Prehistoric India* (1927, Calcutta), p. 360
19. Ibid

APPENDICES

APPENDIX I

RADIO-CARBON DATING

A POPULAR exposition of this latest method of dating and the latest opinion about its reliability, which holds only up to a certain point, are found in the following extract from an American scientific journal, *The Scientific Monthly* (May, 1951), Vol. LXXII, No. 5, p. 313 f.: "The second dating technique is a by-product of modern atomic studies. It rests on the discovery that a radioactive isotope, carbon 14, is constantly being produced in the earth's atmosphere by the collision of cosmic rays with nitrogen atoms. The proportion of this isotope to other carbon in the atmosphere seems to be constant at all times and places. Atmospheric carbon is assimilated by living organisms, whether plant or animal, but the assimilation ceases at death. Since carbon 14 has a half-life of 5,568 + 30 years, by determining the percentage of this isotope in the total carbon of a specimen, it is possible to date it with a comparatively small margin of error. The method cannot be used for material more than 25,000 years old. Dates based on uncharred wood or bone also must be taken with some reservation, for these substances may exchange carbon with deposits in which they are buried. In spite of these limitations, the technique is the best tool so far made available for dating early remains." (See J. R. Arnold and W. F. Libby, *Radio-carbon Dates*.)

The discovery of this new method of radio-carbon dating promises without doubt a radical change in many of our conceptions about the dates of the most ancient lithic implements used by man, as well as of a variety of objects belonging to the pre-Christian era. The foregoing exposition comes from the pen of some of the highest authorities on this subject in U.S.A., and the author of the present work has to confess that there must be many other more or less authoritative articles and works, with which he is not at all familiar. From a more detailed exposition by the same authorities, we are able to gather the following:

Recently, these authorities, Professors J. R. Arnold and W. F. Libby, have written an article entitled "Radiocarbon Dates", in *Science*, (Vol. 113, February 2, 1951, p. 111 f.), in which they sum up their investigations and those of their collaborators in respect of dating ancient materials, belonging to different countries and to

different epochs. We have quoted below the results of only a few of their investigations, relating mainly to the countries in the Middle East. These authors have prefaced their summary-results with the following remarks: "The dates obtained during the past eighteen months by radiocarbon technique are listed below. The dates quoted are based on 5568 ± 30 years as the half-life of radiocarbon — a new value resulting from a correction we recently made on our earlier determination (5720) and from an averaging with the best other published values.... The errors quoted are standard deviations, consisting solely of the error of counting random events. Naturally other errors are involved, so the true error will be somewhat larger. The scatter appears to be little more than would be expected from the errors quoted, so perhaps one can conclude that the counting error is still dominant, and longer counting periods would pay."

Sample No.	Find-spot and Description of Sample	Age (years)
<i>Egypt</i>		
457	Upper K: Wheat and barley grain uncarbonized, with no preservatives added, from Upper K Pit No. 13 of the Fayum A material (G. Caton-Thompson, <i>The Desert Fayum</i>).	6054 ± 330 6130 ± 320 Av. 6005 ± 250
463	Predynastic: Charcoal from point "A-15" of the house floors (<i>fons de cabanes</i>) at El Omari, near Cairo, Egypt . . . (archaeologically) midway between the time of the Upper K pits of the Fayum (No. 457), and Hemaka (No. 267).	5256 ± 230
267	Hemaka: Slab of wood from roof beam of the tomb of Vizier Hemaka, contemporaneous with King Udumu, 1st Dynasty, at Sakkara . . . Accepted age 4700-5100 according to Braidwood.	4803 ± 260 4961 ± 240 Av. 4883 ± 200
1	Zoser: Acacia wood beam in excellent state of preservation from tomb of Zoser at Sakkara. Known age 4650 ± 75 years, according to John Wilson.	3600 ± 770 4234 ± 600 3991 ± 500 Av. 3979 ± 350
12	Sneferu (Seneferu, Snefru): Cypress beam from tomb of Sneferu at Meydum. Known age 4575 ± 75 according to John Wilson.	4721 ± 500 4186 ± 500 5548 ± 500 4817 ± 240 Av. 4802 ± 210

81	<i>Sesostris III</i> : Funerary ship from tomb of Sesostris III. Known age 3750, according to John Wilson.	3845 ± 400 3407 ± 500 3642 ± 310
		Av. 3621 ± 180
492, 547	<i>Early Mesolithic in Iran</i> : Charred bone from Belt Cave in Iran, and Mixture of Layers 25-28.	8004 ± 900
524	<i>Late Mesolithic in Iran</i> : Burned bone from Belt cave in Iran, Layer 11. End of Mesolithic Age.	10560 ± 1200
494, 495	<i>Neolithic in Iran</i> : Burned bone from Belt Cave in Iran, Layers 10, also 6-9. Large errors in Belt Cave due to small size.	8085 ± 1400
523		
113	<i>Jarmo in Iraq</i> : Land snail shells fairly well-preserved from the basal Level 7 and 8. Earliest village material of Mesopotamia and Western Asia: Preceramic.	6707 ± 320
183	<i>Alishar Chalcolithic</i> (Copper Age): Wood from level 14 (out of Levels 9-18), from Alishar, in Turkey.	4510 ± 250
115	<i>Alishar Bronze Age</i> : Wood from the foundation cribbing for a fortification wall in Square 0-10 in III wall of the mound at Alishar, assigned by the excavators to the Bronze Age. (See Ori. Inst. Publications, XXVIII, 209-210, Fig. 207) ¹	3650 ± 350 2823 ± 350
		Av. 3212 ± 250

1. The author of this work is indebted to Dr. S. P. Agharkar, M.A., Ph.D., F.L.S., F.N.I., (Retd.) Ghose Professor of Botany, Calcutta University, for drawing his attention to the two articles, which have been drawn upon by the author in the foregoing pages.

APPENDIX II

NEW METHODS OF DATING THE PAST

THE palaeontological method of dating the strata by the fossil remains found in them is highly useful for all pre-Quaternary epochs, since we find these remains changing from epoch to epoch in a measurable degree. But with the advent of the Quaternary age, we are deprived of this important method of dating, as throughout this age, we find little change in the nature or number of the species, to enable us to assign them on every occasion with precision to the different epochs comprising this age. Only a few species like the sabre-toothed tiger (*Machairodus*), the *Elephas Meridionalis*, the Etruscan rhinoceros, etc., that were characteristic of the period prior to the Antepenultimate Interglacial are found to have disappeared in later times. We also find some types of rhinoceroses adapted to steppe and tundra, and others to woodlands. Barring such considerations, palaeontology helps us little in determining the Quaternary chronology.

Hence, quite naturally, scholars were compelled to depend upon typological considerations in respect of the implements left by man, more than on anything else. But now a number of new methods have been invented, not only to do away with this drawback as regards the chronology of the Quaternary age, but also in respect of earlier periods. It has now become possible to chalk out the chronology of the Pleistocene period by determining the climatological changes that occurred in it by dint of the evidence supplied by the presence of the following types of formations:

(1) *Moraines*: or the accumulations of the detritus, laid down during the course of hundreds of years by glaciers, either at the end (terminal moraines), or at the sides (lateral moraines), or at the bottom of the bed (bottom-moraines or ground-moraines).

(2) *Loess*: or fine dust (often yellowish), blown by wind in the steppe, dry climatic belt, between roughly 45°N. to 50°N.; e.g., in North China, North America, South Russia, etc.

(3) Frost soils and solifluction deposits: i.e., deposits laid down by the melting of snow over the permanently frozen sub-soil, called *tjaele*, that prevents the melt-water from seeping below, and that enables the said deposits to glide down in "a semi-fluid mass".

Some frost soils are formed without the aid of slopes, on plain ground, by annual thawing and freezing, resulting in deposits with ring-formations, and are called polygon soils. "The best-known type of frost soil structures are the *stone-rings* and *stone-polygons*," that are "more widely distributed than other types of frost soils."

(4) *Weathering horizons*: or soils formed by chemical weathering of rain water, mixed with the vegetable matter (humus), in warmer climates, just as the above-mentioned soils are formed in colder climates. Two important examples of such soils are the *podsol*, formed mainly under the heath or coniferous forests, under comparatively cool summers and plenty of rains, and the *Mediterranean Red Earth*, *Terra Rossa* of the Italians, formed under "mild rainy winters and hot and dry summers".

(5) *Travertines*: or limestone tufas, "produced by springs rich in calcium carbonates".

(6) *River Terraces*: formed on account of "interruptions or sudden intensification in the otherwise continuous process of down-cutting." In some districts, the climatic terraces are clearly formed, and constitute an important evidence for building the chronology of the Pleistocene. Elsewhere we come across glaci-fluvial or morainic terraces, formed by moraines of glaciers, occurring on the borders of the Pleistocene ice-sheets.

(7) *Varved clays*: or lamination deposits of the melt-water basins, made by the retreating ice, in the quiet waters in the neighbourhood of the glaciers and hence connected with the moraines. This geochronological method of dating by means of varved clay analysis was invented by Baron Gerard de Geer of Stockholm, who found out a connection between their formations on the one hand and the sun-spots and the precession of equinoxes on the other. This method gives us an almost complete chronology for the late Ice Age and post-Ice Age epochs, or roughly from the end of the Palaeolithic Age to the Iron Age.

In addition to the above formations, there were other aspects that were studied to obtain a chronology of the past. These attempts have enabled us to get at new methods of dating the past, in such a manner that where one method is found to be of little avail, some other becomes useful. They include the following:

(8) *Tree-ring analysis*: or the Dendrochronological method: developed by Dr. Douglass, Dr. Glock, and others, depends upon a study of the enumeration and variations of the growth-rings of the trees, that are formed annually and that are found to vary accord-

ing to the comparative dryness or wetness of the season. The latter is further found to bear relation to the cycle of the sun-spots. This method gives us a dependable chronology at times up to three thousand years.

(9) *Pollen-analysis*: or the method of studying (with the aid of a microscope) the content or amount of fossil pollens, that can be isolated from the surrounding matter on account of its resistance, by means of a dissolving agent like sodium or potassium hydroxide. This method has often enabled scholars to determine the local climatological variations. A number of Neolithic and Mesolithic sites have been "pollen-dated".

(10) *Solar radiation method*: that depends upon the cycles of the precession of equinoxes, obliquity and eccentricity in the earth's movements. This enables us to cover the Palaeolithic Age up to the end of the Ice Age.

(11) *Radioactivity method*: that depends upon the examination of the decomposition of radioactive minerals. This enables us to cover the long period of geological formations prior to the appearance of man, and extending to about 1,500 million years.¹

1. This appendix is based mainly on the two works of Dr. Frederick E. Zeuner, viz., *The Pleistocene Period: Its Climate, Chronology and Faunal Succession* (London, 1945) and *Dating the Past* (London, 1946).

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(This Bibliography is divided under the following four heads.

- (a) Abbreviations of Periodicals;
- (b) Other Periodicals;
- (c) Abbreviations of Works;
- (d) Other Works.)

(a) *Abbreviations of Periodicals*

An. Bibl. Ind. Arch	<i>Annual Bibliography of Indian Archaeology</i>
E.I., Ep. Ind.	<i>Epigraphia Indica</i>
I.A. Ind. Ant.	<i>Indian Antiquary</i>
IHQ I.H.Q.	<i>Indian Historical Quarterly</i>
J.A.	<i>Jurnale Asiatique</i>
JASB	<i>Journal of the Asiatic Society of Bengal</i>
JAOS	<i>Journal of the American Oriental Society</i>
JBBRAS	<i>Journal of the Bombay Branch of the Royal Asiatic Society</i>
JBORS	<i>Journal of the Bihar and Orissa Research Society</i>
JDL	<i>Journal of the Department of Letters, Calcutta University</i>
JRAS	<i>Journal of the Royal Asiatic Society of Great Britain and Ireland</i>
Proc. ASB.	<i>Proceedings of the Asiatic Society of Bengal</i>

(b) *Other Periodicals*

<i>Ancient India</i> (A Bulletin of the Archaeological Survey of India),
<i>Annual Report of the Mysore Archaeological Department</i>
<i>L'Anthropologie</i>
<i>Antiquaries Journal</i> (Society of Antiquities)
<i>Antiquity</i> (Gloucester)
<i>Asiatic Quarterly Review</i>

Bulletin of the Deccan College Research Institute

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The Hindu

Indian Art and Letters

Illustrated London News

Journal of the Anthropological Society (Bombay)

Journal of the Department of Sciences (Calcutta University)

Journal of the North China Branch of the Royal Asiatic Society;

*Journal of the Royal Anthropological Institute of Great Britain
and Ireland (London)*

Journal of the University of Bombay

Madras Journal of Literature and Science

Man in India

Modern Review

Nagpur University Journal

Nature

Palaeontologia Sinica

Proceedings of the British Academy

Proceedings of the Indian Academy of Sciences

Proceedings of the Indian History Congress

Proceedings of the Indian Science Congress

Proceedings of the Pre-historic Society

Russian Anthropological Journal

Science

Science and Culture

The Scientific Monthly

Spolia Zeylanica

The Sunday News of India

Transactions of the Society of Biblical Archaeology

(c) Abbreviations of Works

Albright	W. F. Albright, <i>The Archaeology of Palestine</i> (Pelican Books, 1949).
Andersson	J. G. Andersson, <i>Children of the Yellow Earth</i> (1934).
AR-ASI	<i>Annual Report of the Archaeological Survey of India.</i>
Arch.	Archaeology: Archaeological.

- ASI *Archaeological Survey of India.*
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Up.	<i>Upanishad.</i>
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